

THE JOHNSON COMPANY, INC.

**Environmental Sciences and Engineering**

AUG 30 1993

August 25, 1993

Bob Haslam  
Sites Management Section  
Vermont Hazardous Materials Management Division  
Department of Environmental Conservation  
103 South Main Street  
Waterbury, Vermont 05676

Re: HA Eddy Oil Company, Eddy Convenience Store  
JCO No. 1-0839-1  
JCO No. 1-0839-2

Dear Bob:

Enclosed are the reports on the findings of the investigations performed on the Eddy Convenience Store located at 86 Woodstock Avenue, Rutland, Vermont, and at the Eddy Bulk Facility at 148 Spruce Street, Rutland, Vermont.

These reports are presented to you as two separately bound documents.

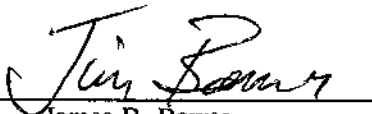
As you are aware, a transaction is planned within the next two weeks between H.A. Eddy and Dead River Co. As we have discussed, both parties are interested in the Agency's input in regard to the status of both Sites. We would respectfully request that your review of these documents be performed as soon as possible in order that all parties may be aware of the Agency's input.

Should you have any questions or comments in regard to the findings, please do not hesitate to call me at 229-4600.

Sincerely,

THE JOHNSON COMPANY, INC.

By:

  
James R. Bowes  
Senior Scientist

cc: Keith Eddy, HA Eddy Company  
Alan Ingraham, Dead River Company  
David Mosher, Mosher Financial

**HA EDDY BULK OIL STORAGE FACILITY**

**148 SPRUCE STREET**

**Rutland, Vermont**

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**August 1993**

*Prepared for:*

**HA EDDY OIL COMPANY**

*148 Spruce St.*

*Rutland, Vermont 05707*

*Prepared by:*

**THE JOHNSON COMPANY, INC.**

*5 State Street*

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931413

## EXECUTIVE SUMMARY

Contamination exists at the H.A. Eddy Oil Company's Bulk Storage Facility (the Site) in the dissolved phase and in the free product phase. The free product appears to be isolated to the northeast corner of the Site. Levels of contamination in the dissolved phase are present in low concentrations over much of the Site. The highest concentration of dissolved contamination is in the northeast corner of the Site.

The source of the majority of free product that has been observed at the Site is attributed to a 1000 gallon gasoline underground storage tank that was removed in 1986. Based on the evidence that is presented in this report, the tank leaked an unknown amount of material into the subsurface. The Oil-Water separator that was located at the southeast corner of the Propane Storage Building and the floor drains in the Propane Storage Building and Old Shop may be a secondary source for a small amount of free product and dissolved phase contamination.

The contamination identified in this report, at the Bulk Storage Facility, can be addressed by the installation of a series of passive product recovery devices in the northeast corner of the Site. These devices would collect the product that is present in the subsurface, thus removing the source of the majority of the dissolved phase contamination. The relatively flat water table under the site and the lack of downgradient receptors supports the use of passive product recovery over active dissolved phase treatment. The floor drains that may be secondary sources can be addressed by integrity testing and sealing drains that provide routes of subsurface releases. The contamination identified at the Self Storage Property across Spruce Street from the Bulk Storage Facility does not require remediation. The concentrations indicated at the Self Storage Property on the two sampling events showed a decrease in levels of constituents to a point approaching the enforcement limits for Benzene. For this property we recommend semi-annual monitoring for this property.

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## 1.0 INTRODUCTION

### 1.1 SITE HISTORY

The H.A. Eddy Bulk Storage Facility is located at 148 Spruce Street in Rutland Vermont (see Figure 1). The facility is owned by the H.A. Eddy Oil Company (Eddy) and has been in business since 1933. The area has long served as an oil storage and distribution terminal. The size of the facility has changed over time. At the peak of operation the facility covered an area that included the present location to as far west as Granger Street. The number of above ground and underground tanks that were located at the Site and in service has changed over the life of the operation. Currently there are nine (9) above ground tanks located at the Spruce Street Facility. All known underground storage tanks have been removed. A discussion of the underground tanks is included in Section 4.2.

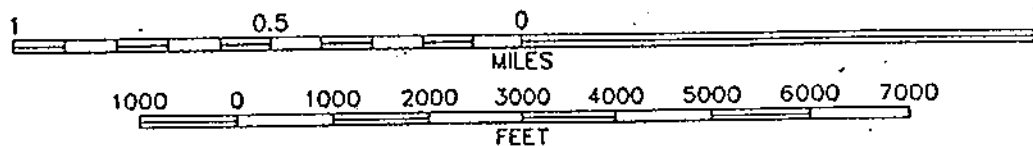
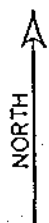
### 1.2 BACKGROUND

#### 1.2.1 The Johnson Company ESA

The H.A. Eddy Oil Company is being purchased by the Dead River Company of Bangor, ME. The sale included the Bulk Storage Facility located at 148 Spruce Street and a convenience store located at 86 Woodstock Ave. The 86 Woodstock Ave Site is discussed in a separate report. The Dead River Company initially hired The Johnson Company, Inc of Montpelier, Vermont to conduct an Environmental Site Assessment (ESA). The ESA indicated the presence of contamination and potential for other regulatory problems at the Site. Upon the completion of the ESA, Eddy hired The Johnson Company to investigate the environmental problems indicated at the Site.

#### 1.2.2 R.H. Roosevelt ESA

An environmental Site assessment was performed at the Bulk Facility by R. H. Roosevelt Construction Co. of Manchester, Vermont in 1989. A total of six monitoring wells (MW) were installed during this assessment along with three soil borings. None of the monitoring wells were sampled for chemical analysis. The groundwater from the monitoring wells was visually inspected for the presence of free product using a clear acetate bailer. The monitoring wells were concluded to not be contaminated based on the results of the visual inspection. Descriptions of the soils encountered during Roosevelt's installation of the monitoring wells indicated the presence of volatile organic compounds (VOC). The concentrations ranged from 5 to 40 ppm as measured by a photoionization detector. The VOCs that were detected are summarized in Table 1. The highest level of readings was obtained in MW-6. The Roosevelt Report is included in this report as Appendix A.



CONTOUR INTERVAL 20 FEET

BASE MAP : USGS 7.5 Minute Topographic Quadrangle:

Rutland, VT 1983



MAP LOCATION

**FIGURE 1 : Site Location Map**  
H.A. Eddy Convenience Store and Bulk Storage  
Rutland, Vermont

**THE JOHNSON COMPANY**  
Environmental Sciences and Engineering  
MONTPELIER, VERMONT

Table 1 Observations of Roosevelt ESA			
Location	Depth	PID (ppm)	Comments
MW-1	3' to 3'-6	4-5	Organic material and staining
MW-2	3	0	Asphalt and building material
	3' to 3'-6	0	Organic material
MW-3	3' to 3'-6	15	Organic material and staining
MW-4	3' to 3'-6	11	Organic material
MW-5	3'	7	Gravel, sand, and fill
	3' to 3'-6	14-15	Organic material and staining
MW-6	3' to 5'	35	Sand and gravel
	at 8'	40	Sand and gravel
SB #1	to 5'	0	
SB #2	to 5'	0	
SB #3	to 5'	0	
Source: "Site Assessment of Property of H.A. Eddy Oil Inc., Spruce Street, Rutland, Vermont, July 28, 1989. Prepared by R.H. Roosevelt Construction Co., Rt 7A, P.O. Box 737, Manchester, Vermont 05254"			

## 2.0 SITE LAYOUT

The Site consists of two parcels of land -- the Bulk Facility at 148 Spruce Street and the Self Storage area across Spruce Street from the Bulk Facility. The Bulk Storage Facility consists of approximately 2.23 acres of land and the Self Storage Property consists of approximately 0.57 acres of land. The contamination on the Bulk Facility constitutes the more significant problem, thus references to the Site signifies the Bulk Storage Facility unless otherwise indicated. There are four (4) buildings at the Site. These buildings include the Maintenance Building, the Propane Storage Building, the Shed, and the Administration Building. There are also nine (9) above ground storage tanks located at the Site. The tanks range from two 10 foot diameter 15,000 gallon tanks up to a 40 foot diameter 448, 000 gallon tank. There were also four underground storage tanks (UST) located at the Site. These four tanks were removed as part of the investigation of the Site. The Fuel Oil Tank was located at the southwest corner of



the Administration Building, the Waste Oil Tank was located on the north side of the Maintenance Building, and the Oil-Water separator and the Abandoned Tank were located on the east side of the Propane Storage Building. A Site Map is included in this report as Plate 1.

### 3.0 SITE INVESTIGATION

#### 3.1 MONITORING WELLS AND SOIL BORINGS

A total of eight new wells were installed during the Site work performed by The Johnson Company, Inc. (JCO). Five of these wells are hand installed observation wells that were installed during the initial JCO ESA. Of the remaining three wells, two are monitoring wells installed by Tri-State Drilling of West Burke, Vermont and one is a hand installed observation well. The location of these wells are shown on the Site Map (Plate 1). The observations that were gathered during the installation of the observation wells are described here. The well logs for the monitoring wells installed at the Site are included in Appendix B.

##### 3.1.1 Observation Wells S-1 and S-2

S-1 was installed on June 3, 1993, behind the Maintenance Building in the vicinity of the Waste Oil Tank. The well was installed with the use of the Little Beaver™ Hydraulic Boring Machine. The bottom of the S-1 was installed at a depth approximately four (4) feet below ground surface (bgs) with the entire length of the casing being slotted well screen. The maximum well headspace reading recorded at S-1 was 7 ppm as recorded on an OVM 580B (PID) calibrated with zero gas and 100 ppm Isobutylene.

S-2 was installed on June 3, 1993, at the corner of the Propane Storage Building (Plate 1), in an area that is likely down gradient of an Oil-Water separator that was connected to the floor drains located inside the Propane Building's truck bays. The entire casing of S-2 was slotted well screen. The well was terminated at a depth of approximately 4.4 feet. A maximum headspace reading of 36 ppm was recorded on the PID inside the well casing.

Approximately seven (7) holes were attempted in the area of the Diesel Pump pad and the Pump Control pad located on the northern edge of the containment berm for the above ground storage tanks. All of these holes ended in refusal prior to the water table being encountered. Therefore, a well was not installed. Headspace readings taken from the soils recovered off the auger flights from several locations had a maximum reading of 163 ppm at a depth of approximately two (2) feet bgs. The present owner later informed The Johnson Company that this area was the site of past filling activities by a previous owner. Fill used in this area included construction debris and marble slag.

### 3.1.2 Observation Wells OS-1, OS-2 and OS-3

OS-1, OS-2 and OS-3 were installed on the property across Spruce Street from the Bulk Storage Facility (H. A. Eddy Self Storage Units). These three observation wells were installed during a subsequent ESA performed June 9, 1993.

OS-1 is located on the east side of the Self Storage area in the approximate middle of the fence line that separates the storage area from Spruce Street. The observation well is terminated at an approximate depth of nine (9) feet bgs. A reading of 97 ppm was obtained off the cuttings recovered by the Little Beaver's™ auger. Soil head space readings were taken from soils recovered off the auger flights from an approximate depth of four and nine feet below grade and indicated 6 ppm and 0 ppm, respectively. The headspace inside the monitoring well casing of OS-1 had a sustained reading of 25 ppm as recorded by the PID.

OS-2 is located in the northwest corner of the Self Storage Lot. Directly across the fence from this location is A & A Welding (154 Granger Street). This well was terminated at a depth approximately 5 feet bgs. Readings of 0 ppm were obtained from the soil auger cuttings and in the well headspace. A reading of 4 ppm was obtained from a soil head space sample, consisting of saturated clay, obtained from approximately 5 feet bgs, off the auger flights.

OS-3 is located in the southwest corner of the Self Storage Lot. This location is proximal to the railway and across the railway are several above-ground tanks owned by others. The observation well was terminated at approximately four feet bgs. Readings of 0 ppm as registered by the PID were obtained off the soil cuttings.

### 3.1.3 Observation Well OS-103

OS-103 was installed on July 13, 1993 as part of this investigation, within the containment area for the above ground storage tanks located at the Bulk Storage Site. The Little Beaver™ was used to install this observation well due to accessibility problems that were encountered with the existence of the tanks and associated containment and piping. OS-103 was installed approximately midway between above ground tank (ABT) # 10 and ABT #17. At a depth of approximately 1.5 feet bgs, PID readings of 291 ppm were indicated on the OVM. OS-103 was terminated at a depth of approximately 15 feet bgs in water bearing material.

### 3.2 WATER QUALITY SAMPLING

The groundwater was sampled from the wells located on the Site on two occasions. The laboratory results are summarized on Table 2. The original laboratory reports are included in Appendix C.

MW- 6 has not been sampled because of the discovery of approximately 1.9 feet of product on June 9, 1993. The product was sampled and sent for finger print analysis by Friedman and Bruya, Inc., Environmental Chemists. The finger print analysis indicated that the product was either kerosene or degraded gasoline. The laboratory report is included in Appendix C. Approximately 300 gallons of water and oil was pumped out of the monitoring well by the H.A. Eddy Company. This material was reportably stored on Site in a temporary above ground tank. After pumping, MW-6 was hand bailed twice a day by H.A. Eddy employees. The product recovered was also reportably stored in the same 300 gallon tank. The state was notified of the contamination, resulting in the listing of the Bulk Storage Site as a Hazardous Site Vermont DEC # 93-1413, as indicated in the most recent listing (July 26, 1993).

On July 28, 1993 all the wells on the Site were sampled, except for MW-2, MW-5 and MW-6. MW-2 could not be located and MW-5 and MW-6 were not sampled because of the presence of product. During this sampling event product was detected for the first time on the water surface in MW - 5. The product thickness in MW-5 was 0.06 feet. The product thickness in MW-6 was 0.11 feet. Thus the amount of product in MW-6 has been reduced significantly through the bailing of the product by H.A. Eddy personnel.

The contaminant concentration detected on the Self Storage Property decreased significantly between the sampling event on June 6, 1993 and the sampling event on July 28, 1993. For example, in the most contaminated observation well (OS-1) benzene concentrations decreased by 50%, MTBE and toluene were found to be below detection limits, and xylenes were reduced by almost a factor of four.

### 3.3 GROUNDWATER ELEVATION AND FLOW DIRECTIONS

The water level of all sampling points was measured on 7/28/93. These water levels were used to create the groundwater contours that are depicted on Plate 1. The contours indicate that there is a groundwater mound in the northeast corner of the site. The groundwater table drops at a slight gradient of approximately 0.013 feet per foot to the southeast. The depth to groundwater is relatively shallow as seen when the ground level contours are compared to the water elevation contours (99 to 96 feet). The area with the most overburden is again the northeast corner of the Site.

Table 2  
Results of Groundwater Samples From  
H.A. Eddy Bulk Storage Facility  
(All results in parts per billion)

Sample Location	Sample Date	Parameter				
		MTBE	Benzene	Toluene	Ethylbenzene	Xylenes
OS-1	6/3/93	11	12	2	BPQL	183
	7/28/93	BPQL	6	BPQL	BPQL	46
OS-2	6/3/93	NO SAMPLE COLLECTED				
	7/28/93	BPQL	BPQL	4	BPQL	BPQL
OS-3	6/3/93	BPQL	BPQL	8	2	BPQL
	7/28/93	BPQL	BPQL	2	BPQL	BPQL
MW-1	6/3/93	BPQL	BPQL	BPQL	BPQL	BPQL
	7/28/93	4	BPQL	BPQL	BPQL	BPQL
MW-3	6/3/93	184	52	4	5	30
	7/28/93	120	50	BPQL	BPQL	BPQL
MW-4	6/3/93	41	4	2	BPQL	BPQL
	7/28/93	30	3	BPQL	BPQL	BPQL
MW-5	6/3/93	BPQL	39	6	20	172
	7/28/93	PRODUCT DETECTED				
MW-6	6/3/93	PRODUCT DETECTED				
	7/28/93	PRODUCT DETECTED				
S-2	6/3/93	7	4	3	5	56
	7/28/93	BPQL	3	3	4	34
MW-101	6/3/93	NO SAMPLE COLLECTED				
	7/28/93	BPQL	4	3	2	BPQL
MW-102	6/3/93	NO SAMPLE COLLECTED				
	7/28/93	BPQL	2	BPQL	BPQL	BPQL
OS-103	6/3/93	NO SAMPLE COLLECTED				
	7/28/93	230	47	210	1110	4500

Notes:

- 1) 1 ppb of 1,2-Dichloroethane was detected in MW-3, MW-4, and MW-5 in the 6/3/93 samples.
- 2) BPQL = Below Practical Quantitation Limit of 1 ppb for all reported parameters

Based on the groundwater elevation contours recorded from measurements on 7/28/93, the groundwater appears to be flowing in a west-southwest direction in the northeast corner of the Site. In the area of the Administration building, the groundwater flow changes to a southwesterly direction. On the Eddy Storage Property (across the street from the Bulk Storage Facility) there is a groundwater divide located in the southwest corner of the site. East of this line the groundwater flows in a easterly direction towards Spruce Street. To the west of this line the groundwater flows in a southwest direction. The cause of the groundwater divide may be infiltration into the City sewers that are located under Spruce Street depressing the groundwater surface in that area.

#### 4.0 POTENTIAL SOURCES OF CONTAMINATION

Given the history of the Site as a bulk storage facility, there are many possible sources of the contamination. The four types of potential sources include the Above Ground Tanks, the Underground Storage Tanks, underground lines, and floor drains located in the various buildings on Site.

##### 4.1 ABOVE GROUND TANKS

###### 4.1.1 Inspection

All nine above ground tanks were cleaned and inspected by ultrasound during the week of July 25th. The final report on the inspections was not available at the time of the drafting of this report. Preliminary results conveyed by Alan Ingraham of the Dead River Company indicated that no problems were found with any of the tanks.

##### 4.2 UNDERGROUND STORAGE TANKS

There are records available that document the removal of a total of six (6) USTs from the Site. Copies of the removal reports are included in Appendix D.

###### 4.2.1 Previous USTs Removed

Two UST removal reports were found in the State files on the Bulk Storage Site.

###### 4.2.1.1 Tank Removal - 1990

According to a Tank Pull Form dated October 24, 1990, that is on file with the Underground Storage Tank Program, a 1000 gallon gas tank, in good condition, was removed from the Site. No contaminated soil was observed, nor were any monitoring wells installed. According to Dick Norris of the H.A. Eddy Oil Company, this tank was located at the southeast corner of the Maintenance Building<sup>1</sup> and was used to hold gasoline.

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<sup>1</sup> Personal Communication, Dick Norris, H. A. Eddy Oil Company, July 5, 1993.

#### 4.2.1.2 Tank Removal - 1986

According to a copy of an inspection log dated September 23, 1986, apparently a 1000 gallon tank in good condition was removed and not replaced from the Site. Contaminated soils in a range of 260 - 480 ppm were reported to be detected. No further actions pertaining to the tank, or the soils were indicated on the form. According to Dick Norris, the tank that was removed contained mostly leaded gasoline. Some unleaded gasoline may have been stored in the tank. The tank was thought to be leaking because the filter on the pump that was attached to the tank kept getting clogged with silt and dirt. The tank was located just inside the back gate that is in the northeast corner of the Site<sup>1</sup>.

#### 4.2.2 July 29, 1993 Removal and Results

A total of four USTs were removed from the Site on July 29, 1993. The four tanks consisted of a 1000 gallon heating oil tank, a 550 gallon waste oil tank, a 275 oil-water (O/W) separator tank, and an abandoned 550 gallon tank. The observations and actions taken are summarized below.

##### 4.2.2.1 Fuel Oil

The fuel oil tank was located on at the southwest corner of the Administration Building. The age of the tank was not known. Minor staining was observed around the fill pipe to the tank. During excavation an unknown line was discovered that ran in a southeasterly direction. The soil in the unknown line indicated 4 ppm on the PID. Upon excavation, leakage and product was observed coming from the bottom of the tank. The soils around the tank appeared to contain a high amount of clay and therefore should be hydraulically tight. These clay soils were encountered approximately 28 inches bgs. No groundwater was encountered during the excavation. The soils in the excavation indicated 82 ppm. Inspection upon removal of the tank indicated numerous corrosion spots all over the tank. One hole about 1/4 inch in diameter was located on the bottom of the tank. Approximately 3 yds of soil was excavated from the bottom of the hole and stored on poly. The soils in the excavation after removal indicated approximately 25 ppm prior to backfilling the hole.

##### 4.2.2.2 Waste Oil

The waste oil tank was located to the rear of the Maintenance Building in the northwest corner of the Bulk Site. The exact age of the tank was not known. Significant staining was present on the ground surface and in the vicinity of the fill pipe. Silty clay soils were encountered approximately 18 inches bgs during the excavation of the waste oil tank. No groundwater was encountered. Upon excavation and inspection by Johnson Company personnel, a total of nine (9) holes were discovered in the tank. The sizes of the holes ranged from 1/4 inch to one inch in diameter. The soils under the tank indicated 12 ppm. The soils were backfilled.

#### *4.2.2.3 Oil-Water Separator*

The Oil-Water (O/W) separator was located on the east side of the Propane Storage Building. The O/W separator consisted of a 275 gallon tank buried on its side and connected to the floor drains in the Propane Maintenance Building with a three inch pipe and Fernco connectors. Upon excavation of the tank, groundwater was encountered at approximately four (4) feet bgs. An oily material was seen floating on the surface of the groundwater. The soils in the excavation registered 82 ppm when tested with the PID. During the excavation, a pin hole stream of liquid was seen coming from the O/W separator. Upon excavation of the tank only one hole was identified. The soils below the tank registered 41 ppm on the PID. During the removal of this tank, a 550 gallon abandoned tank was discovered approximately 10 feet north of the O/W separator. This tank is described in more detail in the next section.

#### *4.2.2.4 Abandoned 550 Gallon Tank*

The abandoned tank appeared to be a 550 gallon tank. Copper tubing, of the nature used in connection to heating oil tanks, was observed attached to the west end of the tank. Both top bungs were open to the soils. Eddy personnel stated that this may have been a tank that was used to supply an oil heater in an old garage now attached to the Propane Maintenance Building. This tank may also have served a diesel pump that was removed from service a number of years ago.

During the excavation, the soils around the tank registered 60 ppm on the PID. When the tank was exposed, a leak was noted in the bottom of the tank. The tank was filled to within two inches of the top with a liquid that appeared, from dipping the tank, to be mostly water. The liquid on top of the water appeared to be oily in nature. After the tank was completely excavated, numerous holes were observed in the sides and ends of the tank. The soils under the tank registered 15 ppm on the PID.

### **4.3 FLOOR DRAINS**

Active floor drains are located in two of the buildings - the Maintenance Building and the Propane Storage Building. If they discharge directly to the subsurface, floor drains may fall under the jurisdiction of the Vermont Underground Injection Control (UIC) Program, which was created from the Water Pollution Control Regulation (Subchapter 13.UIC).

#### 4.3.1 Maintenance Garage

The floor drains in the Maintenance Building appear to be constructed with concrete walls and floors. This suggests that there may be joints and seams within the drains, although the integrity of these drains was not determined during this investigation. The materials that are discharged through these drains is not known. The discharge point of the floor drains is to the City of Rutland's storm sewer. No oil-water separator or grit removal devices were in evidence.

#### 4.3.2 Propane Storage Building

There are a total of three floor drains in the Propane Storage Building. Two drains are located in the new garage area that opens to the south. One floor drain is located in an old garage that is now attached to the Propane Storage Building and opens to the east.

The two floor drains that are located in the new garage area appear to be plumbed together via a pipe that appears to travel either under or through the floor slab. Based upon visual observations, the floor drain in the center of the room appears to be constructed with concrete walls and a solid uniform floor. Approximately one foot of sandy material was observed in the center drain. The sandy material was saturated with water and, when tested, indicated 21 ppm on the OVM. One pipe discharges from the center floor drain in the direction of the floor drain on the east wall of the new garage. The integrity of the center floor drain's walls and floor was not evaluated during this investigation.

The floor drain on the east wall of the new garage appears to have concrete wall construction. The floor of the east floor drain was probed by using a hand auger. Three separate borings were made within the east floor drain. These borings were stopped at 46 inches, 51 inches and 54 inches below grade, respectively. No refusal was encountered in any of the holes. The soils retrieved from the borings appeared to be native silty clay. The floor and wall around the floor drain was heavily stained. The liquid on the surface of the floor drain had an oily appearance. The source of the staining, as stated by H.A. Eddy personnel, was from a liquid that came through a crack in the wall of the garage. The liquid only flowed for a short period during the spring time. The flow was first noted in the spring of this year.

The floor drain in the old shop appears to have concrete walls and a smooth uniform hard bottom. The drain is approximately 31 inches deep and contains approximately 16 inches of liquid. The OVM indicated 44 ppm, inside the floor drain, as the liquid was stirred up. There is a 5 inch OD cast iron discharge line exiting the floor drain. The top of the pipe is located approximately 8 inches below the top of the slab. The end of the pipe has a ninety degree elbow attached to it that opens down into the floor drain. The pipe exits the floor drain towards the south wall of the old garage.



## 5.0 CONCLUSION

There is contamination indicated in groundwater at the Eddy Bulk Site in the dissolved phase and as a non-aqueous phase (NAPL). The NAPL appears to be isolated to the northeast corner of the Site. This material appears to be migrating to some extent. This is based on the observations of the NAPL in MW-5 on July 28 when previously NAPL had been measured in only MW 6, suggesting migration of the NAPL. The migration may be a result of recent bailing and pumping of NAPL from MW 6, or other Site activities that have disturbed the groundwater flow patterns. The source of the NAPL appears to be a leaking UST that was removed in 1986. This is based on the fact that the fingerprint of the NAPL recovered from MW 6 was identified by Friedman and Bruya as kerosene or weathered gasoline. Further, the analysis of the dissolved contamination in the groundwater collected from the monitoring wells has indicated the presence of MTBE, which is an additive used in unleaded gasoline and never in kerosene. The NAPL appears to be isolated to the northeast corner of the Site possible because this area has been filled, thus providing ample cavities for the NAPL to collect and not be significantly affected by groundwater flow.

The dissolved phase contamination appears to be present over the entire Site, however, the levels of the dissolved appears to be low, especially when the lack of potential receptors are taken into consideration. The source(s) of the dissolved phase need to be evaluated based upon the sampled locations at the Site. In the northeast corner of the Site, where the NAPL is located, the dissolved phase contamination may be from a leaking UST removed in 1986. Dissolved phase contamination present in the Self Storage area across Spruce Street (from the Eddy Bulk Site) is likely the result of historic activities at the Site, i.e., overfills or small releases during fuel transfer operations in the historic Bulk Storage facility.

Based on the slight slope of the groundwater (0.01 feet per foot) and the lack of potential receptors (absence of residences and drinking water wells) near the Site, the area of the Site that The Johnson Company recommends remedial action would be in the northeast corner of the Site. A conceptual remedial action plan is discussed in the next section of this report.

## 6.0 REMEDIAL CONCEPTUAL DESIGN

The remediation at the H.A. Eddy Bulk Storage Facility should address the presence of the NAPL contamination present on the Site in the northeast corner of the Site. The remediation should also address the floor drains that exist on the Site that may not be in compliance with the current State of Vermont regulations.

## 6.1 GROUNDWATER

### 6.1.1 Passive NAPL Collection System

NAPL was observed as far west as the Oil-Water separator area which was located in the northeast area of the Site. Therefore the best way to collect the NAPL would be to place NAPL collection points in the northeast corner of the Site. The collector points would consist of passive NAPL collection devices installed in a series of well points in the northeast corner of the site (see Appendix E). Periodically the collection devices would be removed from the wells and emptied into a DOT approved drum. The drum would be transported from the site on a periodic basis. Given the direction of groundwater flow, the relatively low concentrations in the groundwater, and the lack of receptors in the path of the contamination, no treatment of the dissolved phase is recommended.

### 6.1.2 Observation Well Closure

The observation well OS-103 is meant for short term use only. During remediation of the Site, OS - 103 shall be filled with bentonite to eliminate all potential for this observation well to become a preferential pathway for contaminate migration in the event of an above ground tank failure.

### 6.1.3 Self Storage Property

As discussed above, the levels of contamination that were indicated in the monitoring wells on the Self Storage Property dropped significantly between the two sampling events. The latest water quality analysis indicates benzene concentrations close to the enforcement standard. Thus, combining the drop in the concentrations with the lack of downgradient receptors, the recommended remedial action for the Self Storage Property is semi-annual monitoring for a period of five years. If no significant change in concentrations are observed then the Self Storage Property Site should be closed.

## 6.2 FLOOR DRAINS

The floor drains in the two buildings are potential sources of contamination and should be brought into compliance with the appropriate state regulations. The floor drains in question are located in the Maintenance Building, the Propane Storage Building, and the Old Shop that is attached to the Propane Storage Building.

### 6.2.1 Maintenance Garage

The floor drains in the Maintenance Building have been reported to be constructed with concrete walls and a concrete floor. Currently the drains discharge to the City of Rutland's, Storm Sewer. There is no known oil/grit separator on the discharge. Left as is, the only separation would occur in the floor

drains themselves. Based on the assumption that the flow through the drains are intermittent and of low volume, the floor drains probably function as a good grit separator and possible as an adequate free oil separator.

There may be requirements that this outfall be re-routed to the sanitary sewer. Since there is a discharge pipe currently connected to the sanitary sewer for the sanitary facilities in the Maintenance Building, connecting the floor drains to the sewer outfall would be a minor task. The integrity of the floor drains may need to be investigated, however. The need for an oil and grit separator may be avoidable if it can be shown that the integrity of the drain is sound, the flow is minor, there are adequate receptacles for materials that should not be disposed of in the drain, the drains function as grit traps, the drains are periodically cleaned out and that there is a sufficient education program for all workers who have the potential to discharge to the floor drains.

#### 6.2.2 Propane Storage Building

The floor drains in the Propane Storage Building are a concern. Based on the poor construction practices used in the building, the integrity of the floor drains and the piping connecting them is questionable. Currently there are two floor drains located in the Propane Storage Building. The center drain appears to be constructed of concrete walls and a solid floor. The drain should be checked for integrity. The route of the drain line from the center drain appears to be to the east floor drain. The route should be checked to determine if this is true. The east drain appear to have concrete walls and no floor, thus serves as a point source for discharge to the environment.

The use of this area of the building is anticipated to change from a truck bay to a truck bay and a truck washing station. To accomplish this change, the floor drains will have to be repaired and plumbed to an oil/water separator. The separator will then be discharged to the sanitary sewer, possible via a force main. The oil/water separator that is under consideration for this location is a Highland Tank HT-DB 550 series tank that is capable of handling approximately 55 gallons per minute. This separator is capable of reducing the oil content of the effluent to approximately 50 ppm. The effluent of the separator will be the sanitary sewer either via a force main or by gravity. Permits will be required for the construction of this system.

### 6.2.3 Old Shop

As stated in Section 4.3.2, the floor drain in the Old Shop has a discharge pipe that appears to exit the building to the south. The termination of this drain is unknown. The discharge point of this pipe will need to be found and the soils around the pipe may need to be sampled. The floor drain should then be filled with non-shrinking grout, thus preventing future releases to the environment.

## 7.0 OTHER WORK FOR SITE

The only task planned for the Site that is not required for the remediation of the Site contamination is the supplying of water to the Propane Storage Building. This supply may be able to be accomplished by tapping off the existing supply that is in the Maintenance Building and running a pipe underground to the Propane Storage Building. This work shall require a plan to be submitted to the State and the City. A permit to add an additional connection to the water service shall also be required. We suggest that the installation of this service be included in the remedial design and construction phase to limit the disturbance to the Site.

## **Appendix A**

### **RH Roosevelt Environmental Site Assessment**

990-0828  
Alan Ingraham

Site Assessment of  
Property of H. A. Eddy Oil Inc.  
Spruce Street, Rutland, Vermont  
July 28, 1989

Prepared For:  
Mr. Richard Norris  
H. A. Eddy Oil Inc.  
Rutland, Vermont

Prepared By:  
R. H. Roosevelt Construction Co.  
Rt 7A, P. O. Box 737  
Manchester, Vermont 05254

Prepared By:  
Richard Roosevelt  
Consultant 362-5540

1.0

INTRODUCTION

R. H. Roosevelt Construction Co. (RHRCC) was contracted by H. A. Eddy Oil Inc. on 7/20/89 to conduct an investigation for subsurface contamination at their location on 148 Spruce Street, Rutland Vermont. The purpose is to determine the presence, amount, and extent of contamination, if any, at their Bulk Petroleum Storage Facility outside the exterior of the containment wall.

2.0

SITE HISTORY

This location has served as a bulk storage area with above ground storage tanks for approximately 50 years. Previously owned by Mobil-Sucony and purchased by H. A. Eddy approximately 30 years ago. There is no evidence on history of a "spill" recorded for the above ground storage tanks.

3.0

BACKGROUND

Completion of this environmental survey has shown this location to have minor contamination as evidenced by surface staining of soils at and around the loading and unloading facilities.

This report has been prepared to provide H. A. Eddy Oil Inc. with a site assessment of their Bulk Petroleum Storage Facility. Included in this report are:

- 1- Our findings from the investigation.
- 2- Further recommendations.

#### 4.0

#### GEOLOGIC AND HYDROGEOLOGIC SETTING

The geologic setting of the City of Rutland, located in the central southwestern region of the state, has been highly influenced by glaciation. Observations of the surficial deposits revealed permeable medium to coarse sand and gravel.

Drilling encountered fill with building rubble, bricks, marble, and old concrete to a depth of approximately 2 1/2' to 3' where sand and gravel with some organic material (plant roots, etc.) were encountered for approx 6". A medium bluish clay was encountered that gradually changed to a greenish tan clay at 6 feet. At no time was this clay layer ever penetrated either intentionally or unintentionally, bedrock was never encountered.

Groundwater encountered at the site remained perched on top of this layer of clay.

#### 5.0

#### MONITORING WELL CONSTRUCTION

Six monitoring wells were installed at the site. Drilling apparatus was a Mobil drill model B47 with hollow stem auger in 5' increments. Each well consists of 2" diameter, schedule 40 PVC well screen with a slot size of .010 inches, with a #1 grade sand as packing material surrounding it. The cover is a 24" long cast iron sleeve 6" in diameter with a special locking bolt. This sleeve is embeded in approximately 10" of concrete for traffic areas.

Gauging of these wells was done with a tape and bailer.

#### 6.0

#### VAPOR MONITORING

Vapor monitoring was performed throughout the site with a HNU model PI101 photoionization detector that was calibrated according to HNU's



specifications and Petromark's on a daily basis during its use. This instrument is designed to measure the concentration of specific trace gases as they volatilize from the soils and pass across the photoionization sensor, with a capability of detecting a level of 1 part per million (1ppm) aromatic compound.

## 7.0

### MONITORING WELL LOCATION

Please see the attached plot plan for monitoring well locations and soil boring locations.

### OVERVIEW OF ASSESSMENT

Monitoring wells were installed at the site as well as soil borings as indicated on the plot plan. The economics for installing quality monitoring wells instead of just soil borings was acceptable and would provide H. A. Eddy Inc. with a means of monitoring their location at any time they desire in the future.

The topography of the site indicated that the eastern side of the property is highest and gradually slopes to the middle of the property in a westernly direction by about 4 feet, from there to the front gate on Spruce St. is it fairly level. The apparent groundwater flow is in this direction.

#### WELL LOGS:

Steam cleaning of the augers, sampling spoons, and all equipment was done between each monitoring well and soil boring.

Monitoring well #1- 8:30am 7/20/89 RHR drill supervisor.

Drilled to 3'- Fill materials encountered, sand and gravel.

Split Spoon sample 3' to 5'- Blow count 1-1-2-1 140lb. hammer.

3'-3'6" organic material and evidence of some old oil present by staining, HNU reading 4-5 PPM. Background 0, ( Found in an interview later that materials from cleaning of vehicle maintenance shop floors had been dumped in this area years ago.)

3' 6" to 5' light blue clay.

Drilled 5' to 10' auger HNU reading 0, background 0.

Installed 9'6" well screen with #1 grade sand pack. Water table 34" down from grade.

#### Soil Boring #1-

Drilled to 3'- same fill materials as MW31 HNU reading 0.

Split Spoon 3'-5'- same soil profile as MW#1 except no evidence of old oil. HNU reading 0, background 0.

#### MW#2- 10:30am 7/20/89 RHR drill supervisor.

Drilled to refusal at 1'-2'-3 times. 4th time successful.

Drilled to 3'- asphalt (6") sand and bldg. material fill HNU 0 PPM.

Split Spoon Sample 3' to 5' blue gray clay.

3'-3'6"- organic materials present. HNU reading 0, background 0.

3'6" to 5'- blue gray clay.

6' to 10'- blue gray to greenish tan clay. HNU 0. Background 0.

Installed 9'4" well screen with #1 grade sand pack. Water table 43" down from grade.

#### MW#3- 1:30pm 7/20/89 RHR drill supervisor.

Drilled to 3'- sand and gravel. 0 ppm HNU-auger, 0 ppm HNU background.

Split Spoon Sample 3' to 5'- Blow count 3-5-6-6, 140lb hammer.

3' to 3'6"- HNU reading 15 ppm, background 0 ppm, organic materials, some old staining.

3'6" to 5'- blue gray clay, 0 ppm HNU.

5' to 10'- Auger 0 ppm HNU. Tan clay.

Installed 9'6" well screen with #1 grade sand pack. Watertable 22" down from grade.

#### SB#3- Drilled to 3' sand, gravel, and fill compacted by traffic.

Split Spoon Sample 3' to 5'- Blow count 17-12-11-8. HNU readings on soils 0-3', 0 ppm and background 0 ppm. Split spoon sample 0 ppm and background 0 ppm.

#### MW#4- 3:30pm 7/20/89 RHR drill supervisor.

Drilled to 3' HNU reading 5 ppm. Hole and flights, 0 ppm background.  
Split Spoon 3' to 5'- 3'6" to 5'- blue gray clay. 0 ppm HNU reading,  
background 0 ppm.

3' to 3'6"- dark organic materials and 11 ppm HNU reading.  
Installed 9'6" well screen with #1 grade sand pack. Watertable 31" from  
grade.

MW#5- 8:30am 7/21/89 RHR drill supervisor.

Drilled 3' sand, gravel and fill. HNU readings 7 ppm on hole flights. 0 ppm  
background.

Split Spoon 3' to 5'- blow counts 3-4-7-5, 140 lb hammer.

3' to 3'6"- organic material and staining. 14-15 ppm HNU.

3'6" to 5'- blue gray clay .

5' to 10'- tan clay. 0 ppm auger readings, 0 ppm background.

Intalled 9'6" well screen with #1 graded sand pack. Watertable 31" down  
from grade.

MW#6- 11:00am 7/21/89 RHR drill supervisor.

Drilled to 3' sand and gravel. HNU reading 8 ppm, background 0 ppm.

Split Spoon Sample 3' to 5'- sand and gravel. Blow count 4-4-9-19. 35  
ppm HNU reading, background reading 0 ppm.

Drilled to 8'- sand and gravel 40 ppm auger readings.

Split Spoon Sample 8' to 10'- Blow count 3-4-4-7. Encountered tan clay  
at 8' and it ran to 10'. HNU reading 0 ppm for sample.

SB#2- Drilled to 3'- sand, gravel and fill and into gray clay. 0 ppm HNU  
readings, 0 ppm background.

Split Spoon Sample 3' to 5'- blue gray clay. Blow count 4-2-5-6. 140 lb.  
hammer. - ppm HNU reading, 0 ppm background.

#### Comments:

You will note that where contamination was found in MW#s 1, 3, and 6; soil  
borings were taken approximately 25-30 feet downgradient of them and  
show no contamination.

Monitoring well #6 has apparently been drilled in an area that had been excavated at one time, since fill and sand and gravel were encountered to a depth of 8' where undisturbed clay was found. This area could have been excavated during the construction of footings for the pumps at the R.R. Siding, for the construction of a loading rack that was there previously or an old building foundation. The extent of this excavation is not known but it is believed that whatever contamination is present would be confined by the surrounding clay. With the presence of underground wiring and piping, it would not be prudent to attempt to install additional wells or borings in this area.

There is staining of the surface in the area of the pumps at the rail siding (The rail siding has not been used by a train in over 10 years). Motor transports still use the pumps.

Staining is also shown on the plot plan by the racks. Monitoring wells have been located so as to determine the extent of this contamination. And has been shown on the well logs.

Property of the Vermont Railway surrounds H. A. Eddy's property on the south and east sides. A rail spur is adjacent to the southern bound and goes to a railyard on the eastern side of the property. Between the property lines and the rail spur and yard is low land with standing water in it with dense growth. A visual inspection of this area shows no evidence of seeps, sheens or spills of petroleum products on the water or adjacent banks (adjacent to the containment area).

The level of the property of the City of Rutland on the northern bounds has also apparently been raised by fill and rubble to approximately the same elevations as H. A. Eddy's property.

The presence of this fill, location of the water table and the existence of the clay layer give us a good profile of the property. Four days after the installation of the monitoring wells sampling was done with a clear acrylic bailer. There was no product or evidence of a sheen in any of the monitoring wells indicating that there is no "free product" on the site.

The levels of contamination shown in the soils in MW's 1, 3, 4, 5, and 6 are within the "allowable limits" of the State of Vermont, Agency of Natural Resources, without further investigation or remediation being necessary.

CONCLUSION:

It is of the opinion of this consultant that no further investigation be made in view of conditions at the site.

Enclosed you will find photographs of the facility and the type of soil and clay encountered.

6014602

8240 Lab Test

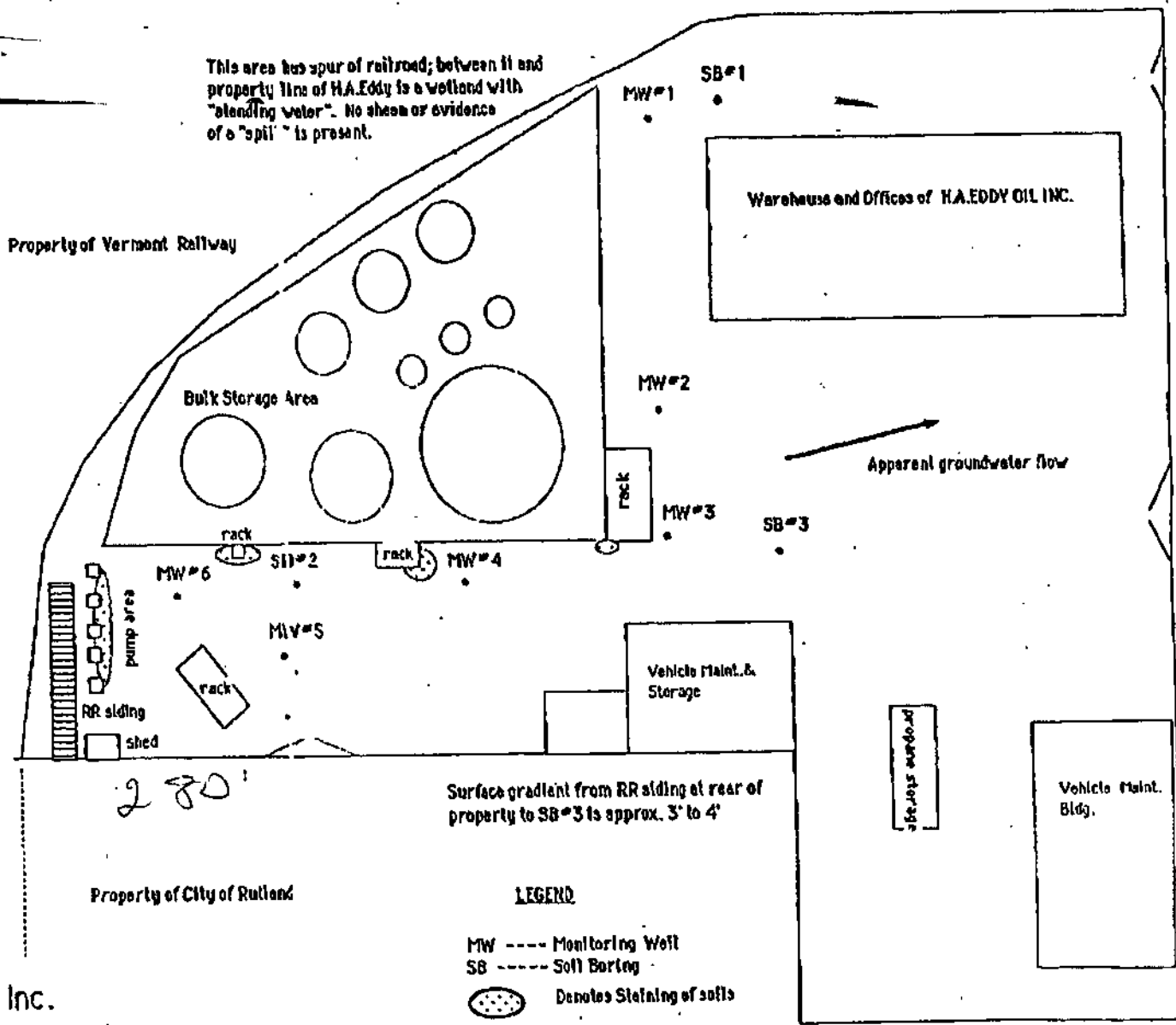
at least 3 wells

Property of Vermont Railway

Minimum of 4 wells  
each site



Applied Geo &  
Environmental  
Services



Plot Plan of H.A. EDDY OIL Inc.

Scale 1" equals approx 40'

BY R.H. ROOSEVELT CONST. CO., Manchester, VT.

SPRUCE STREET

250'

## Appendix B

### Well Logs

# SOIL PROBE LOG

Page 1 of 3  
M.W. # 101  
H.A. Eddy Bulk Plant  
Rutland, VT

TRI STATE  
DRILLING & BORING, INC.  
RFD #2, Box 113 West Burke, VT 05671  
(802) 467-3123

		SAMPLER
		Continuous
TYPE	HSA	SS
SIZE	2"	
HAMMER	140#	
FALL	30"	

SOIL  
Saturated  
Wet  
Moist  
Damp  
Slightly Damp

RECEIVED

JUL 16 1993  
THE JOHNSON COMPANY  
MONTPELIER, VERMONT

DATE STARTED: 7/13/93

DATE COMPLETED: 7/13/93

## FOOTAGE

DEPTH BLOW COUNTS REC

## DRILLER'S NOTES & COMMENTS

6 12 18 24

..3-7'...1..1..2..3..4..16" Moist.

Light olive brown silty clay, clay silt.

Stand by - waiting for Greg 9:00 - 10:45

..7-9'...1..2..3..3..18" Wet.

Light brown silty fine sands.

..9-11'...1..2..3..3..16" Wet.

Light brown silty fine sands.

..11-13'...2..3..4..6..17" Wet.

Light brown silty fine sands.

Augered to 13', set well.

Screen 13' to 3' below GS.

Riser 3' to GS.

Sandpack 13' to 2'10" below GS.

Chips 2'10" to 1'4" below GS.

Road box installed.

Client: H.A. Eddy Bulk Plant  
Job Location: Rutland, VT  
Engineer: The Johnson Company  
Montpelier, VT  
Inspector: Greg Johnson

Driller: Ed Westover  
Helper: Hank Dawson  
Materials: 10' screen, 3' riser,  
1 cap, 1 locking plug, 3 sand,  
1/2 hole plug, 1 sakrete, 1 road box.



## SOIL PROBE LOG

Page 2 of 3

M.W. # 102

H.A. Eddy Bulk Plant  
Rutland, VTTRI STATE  
DRILLING & BORING, INC.  
RFD #2, Box 113 West Burke, VT 05871  
(802) 467-3123

		SAMPLER	SOIL
		Continuous	Saturated
TYPE	HSA	GS	Wet
SIZE	2"		Moist
HAMMER	140#		Damp
FALL	30"		Slightly Damp

DATE STARTED: 7/13/93

DATE COMPLETED: 7/13/93

## FOOTAGE

DEPTH BLOW COUNTS REC

DRILLER'S NOTES &amp; COMMENTS

6 12 18 24

..5-7'...1...3...7...5...7...18" Moist.

Light olive brown silty fine sands.

..7-9'...1...2...1...2...2...18" Wet.

Same as above.

..9-11'...1...2...3...4...4...17" Wet to

Brown silty fine sands.

.....Sat'd.

..11-13'...1...2...3...5...3...15" Sat'd.

Same as above.

..13-15'...1...2...4...6...7...13" Sat'd.

Same as above.

Screen 15' to 5' below GS.

Riser 5' to GS.

Sandpack 14' to 4' below GS.

Chips 4' to 2' below GS.

Backfill and road box installed.

Client: H.A. Eddy Bulk Plant  
Job Location: Rutland, VT  
Engineer: The Johnson Company  
Montpelier, VT  
Inspector: Greg JohnsonDriller: Ed Westover  
Helper: Hank Dawson  
Materials: 10' screen, 5' riser,  
1 cap, 1 locking plug, 3 sand,  
1 hole plug, 1 sakrete, 1 road box.

Page 3 of 3  
M.W.#103(observation  
H.A. Eddy Bulk Plant  
Rutland, VT

Page 3 of 3  
M.W.#103(observation  
H.A. Eddy Bulk Plant  
Rutland, VT

DATE COMPLETED: 7/13/93

Johnson Co. hand augered well.

Driller: Ed Westover  
Helper: Hank Dawson  
Materials: 10' screen, 10' riser,  
2 caps, 1/2 sand, 1/2 hole plug.

**Appendix C**  
**Laboratory Data**

# LABORATORY REPORT

CLIENT NAME: The Johnson Company  
 SITE LOCATION: Dead River Co.  
 Eddy Bulk Plant, Rutland  
 ATTENTION: James Bowes

LABORATORY NUMBER: 3-0890  
 PROJECT NUMBER: 78611  
 DATE OF SAMPLE: 6/3/93  
 DATE OF ANALYSIS: 6/10-14/93  
 DATE OF REPORT: 6/17/93

CS  
 JN

PARAMETER	MW-1	MW-3	MW-4	MW-5	S-2
Chloromethane	BPQL	BPQL	BPQL	BPQL	BPQL
Bromoform	BPQL	BPQL	BPQL	BPQL	BPQL
Bromomethane	BPQL	BPQL	BPQL	BPQL	BPQL
Dibromochloromethane	BPQL	BPQL	BPQL	BPQL	BPQL
Vinyl Chloride	BPQL	BPQL	BPQL	BPQL	BPQL
Chloroethane	BPQL	BPQL	BPQL	BPQL	BPQL
Methylene Chloride	BPQL	BPQL	BPQL	BPQL	BPQL
Trichloroethylene	BPQL	BPQL	BPQL	BPQL	BPQL
Trichlorofluoromethane	BPQL	BPQL	BPQL	BPQL	BPQL
1,1-Dichloroethene	BPQL	BPQL	BPQL	BPQL	BPQL
1,1-Dichloroethane	BPQL	BPQL	BPQL	BPQL	BPQL
or t-1,2-Dichloroethylene	BPQL	BPQL	BPQL	BPQL	BPQL
Chloroform	BPQL	BPQL	BPQL	BPQL	BPQL
1,2-Dichloroethane	BPQL	1	1	1	BPQL
1,1,1-Trichloroethane	BPQL	BPQL	BPQL	BPQL	BPQL
Carbon Tetrachloride	BPQL	BPQL	BPQL	BPQL	BPQL
Bromodichloromethane	BPQL	BPQL	BPQL	BPQL	BPQL
2-Dichloropropane	BPQL	BPQL	BPQL	BPQL	BPQL
1,3-Dichloropropene	BPQL	BPQL	BPQL	BPQL	BPQL
c-1,3-Dichloropropene	BPQL	BPQL	BPQL	BPQL	BPQL
1,2,2-Tetrachloroethane	BPQL	BPQL	BPQL	BPQL	BPQL
1,1,2-Trichloroethane	BPQL	BPQL	BPQL	BPQL	BPQL
Tetrachloroethylene	BPQL	BPQL	BPQL	BPQL	BPQL
TBCE	BPQL	184	41	BPQL	7
Benzene	BPQL	52	4	39	4
Toluene	BPQL	4	2	6	3
Ethylbenzene	BPQL	5	BPQL	20	5
Chlorobenzene	BPQL	BPQL	BPQL	BPQL	BPQL
1,4-Dichlorobenzene	BPQL	BPQL	BPQL	BPQL	BPQL
3-Dichlorobenzene	BPQL	BPQL	BPQL	BPQL	BPQL
1,2-Dichlorobenzene	BPQL	BPQL	BPQL	BPQL	BPQL
Xylenes	BPQL	30	BPQL	172	56
Surrogate % Recovery 8010/8020	89/87	98/---	92/91	96/105	98/---

EPA Method 8010/8020; All results reported as ug/l or ppb.

BPQL = Below Practical Quantitation Limit: 5 ppb for Bromoform; 1 ppb for All other parameters.

NOTE: Samples S-2 and MW-3 had surface sheen. Petroleum background interfered with some 8020 Surrogates.

Post-It brand fax transmittal memo 7671		# of pages 3
To: Greg Johnson	From: R. Lamothe	
Co: Johnson Co	Co: Scitest	
Dept:	Phone # 728-6013	
Fax # 229-5876	Fax # 728-6044	

Respectfully Submitted,  
 SCITEST, INC.

*Roderick J. Lamothe*  
 Roderick J. Lamothe  
 Laboratory Director

CLIENT NAME: The Johnson Company  
SITE LOCATION: Dead River Co.  
Eddy Bulk Plant, Rutland  
ATTENTION: James Bowes

LABORATORY NUMBER: 3-0890  
PROJECT NUMBER: 78611  
DATE OF SAMPLE: 6/3/93  
DATE OF ANALYSIS: 6/10-14/93  
DATE OF REPORT: 6/17/93

PARAMETER	MW-101	MW-102	MW-103	TRIP BLANK
Chloromethane	<100	BPQL	BPQL	BPQL
Bromoform	<500	BPQL	BPQL	BPQL
Monomethane	<100	BPQL	BPQL	BPQL
Dibromochloromethane	<100	BPQL	BPQL	BPQL
Vinyl Chloride	<100	BPQL	BPQL	BPQL
Chloroethane	<100	BPQL	BPQL	BPQL
Methylene Chloride	<100	BPQL	BPQL	BPQL
Trichloroethylene	<100	BPQL	BPQL	BPQL
Trichlorofluoromethane	<100	BPQL	BPQL	BPQL
1,1-Dichloroethene	<100	BPQL	BPQL	BPQL
trans-1,2-Dichloroethane	<100	BPQL	BPQL	BPQL
trans-1,2-Dichloroethylene	<100	BPQL	BPQL	BPQL
Chloroform	<100	BPQL	BPQL	BPQL
trans-2-Dichloroethane	<100	1	BPQL	BPQL
trans-1,1-Trichloroethane	<100	BPQL	BPQL	BPQL
Carbon Tetrachloride	<100	BPQL	BPQL	BPQL
trans-1,2-Dichloropropane	<100	BPQL	BPQL	BPQL
trans-1,3-Dichloropropane	<100	BPQL	BPQL	BPQL
trans-1,3-Dichloropropene	<100	BPQL	BPQL	BPQL
trans-1,1,2,2-Tetrachloroethane	<100	BPQL	BPQL	BPQL
trans-1,1,2-Trichloroethane	<100	BPQL	BPQL	BPQL
trans-1,2-Trichloroethylene	<100	2	BPQL	BPQL
MIBK	2430	1400	395	BPQL
Benzene	2850	5	273	BPQL
toluene	2900	3	198	BPQL
Ethylbenzene	420	2	94	BPQL
Chlorobenzene	<100	BPQL	BPQL	BPQL
trans-1,2-Dichlorobenzene	<100	BPQL	BPQL	BPQL
trans-1,3-Dichlorobenzene	<100	BPQL	BPQL	BPQL
trans-1,4-Dichlorobenzene	<100	BPQL	BPQL	BPQL
Phenols	2280	BPQL	332	BPQL
Surrogate % Recovery 8010/8020	108/102	104/104	109/106	90/88
TEX	8450			

E A Method 8010/8020; All results reported as ug/l or ppb.

BPQL = Below Practical Quantitation Limit: 5 ppb for Bromoform; 1 ppb for All other parameters.

# LABORATORY REPORT

CLIENT NAME: The Johnson Company  
 SITE LOCATION: Dead River Co.  
 Eddy Storage, Rutland  
 ATTENTION: James Bowes

LABORATORY NUMBER: 3-0944  
 PROJECT NUMBER: 78611  
 DATE OF SAMPLE: 6/9/93  
 DATE OF ANALYSIS: 6/11/93  
 DATE OF REPORT: 6/17/93

PARAMETER	05#1	05#3	TRIP BLANK
Chloromethane	BPQL	BPQL	BPQL
Bromoform	BPQL	BPQL	BPQL
Bromomethane	BPQL	BPQL	BPQL
Dibromochloromethane	BPQL	BPQL	BPQL
Vinyl Chloride	BPQL	BPQL	BPQL
Chloroethane	BPQL	BPQL	BPQL
Methylene Chloride	BPQL	4	BPQL
Trichloroethylene	BPQL	BPQL	BPQL
Trichlorofluoromethane	BPQL	BPQL	BPQL
1,1-Dichloroethene	BPQL	BPQL	BPQL
1,1-Dichloroethane	BPQL	BPQL	BPQL
or t-1,2-Dichloroethylene	BPQL	BPQL	BPQL
Chloroform	BPQL	BPQL	BPQL
1,2-Dichloroethane	BPQL	BPQL	BPQL
1,1,1-Trichloroethane	BPQL	BPQL	BPQL
Carbon Tetrachloride	BPQL	BPQL	BPQL
Bromodichloromethane	BPQL	BPQL	BPQL
1,2-Dichloropropane	BPQL	BPQL	BPQL
1,3-Dichloropropene	BPQL	BPQL	BPQL
1,3-Dichloropropene	BPQL	BPQL	BPQL
1,1,2,2-Tetrachloroethane	BPQL	BPQL	BPQL
1,1,2-Trichloroethane	BPQL	BPQL	BPQL
Trichloroethylene	BPQL	BPQL	BPQL
MTBE	11	BPQL	BPQL
Benzene	12	BPQL	BPQL
Toluene	2	8	BPQL
Ethylbenzene	BPQL	2	BPQL
Chlorobenzene	BPQL	BPQL	BPQL
1,4-Dichlorobenzene	BPQL	BPQL	BPQL
1,3-Dichlorobenzene	BPQL	BPQL	BPQL
1,2-Dichlorobenzene	BPQL	BPQL	BPQL
Alkenes	183	BPQL	BPQL
Surrogate % Recovery 8010/8020	109/108	112/105	112/89

EPA Method 8010/8020; All results reported as ug/l or ppb.

BPQL = Below Practical Quantitation Limit: 5 ppb for Bromoform; 1 ppb for All other parameters.

Respectfully Submitted,  
 SCITEST, INC.

*Roderick J. Lamothe*  
 Roderick J. Lamothe  
 Laboratory Director



FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Andrew John Friedman  
James E. Bruya, Ph.D.  
(206) 285-8282

3008-B 16th Avenue West  
Seattle, WA 98119  
FAX: (206) 283-5044

June 18, 1993

Gregory Johnson, Principal  
The Johnson Company, Inc.  
5 State Street  
Montpelier, VT 05602

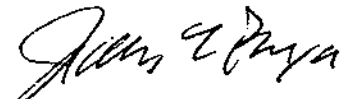
RECEIVED  
JUN 21 1993  
THE JOHNSON CO., INC.  
MONTPELIER, VERMONT

Dear Mr. Johnson:

Enclosed are the results from the testing of material submitted on June 11, 1993  
from Project 1-0428-1, Dead River.

We appreciate this opportunity to be of service to you and hope you will call if you  
should have any questions.

Sincerely,



James E. Bruya, Ph.D.  
Chemist

JEB/sao

Enclosures

FAX: (802) 229-5876

Date of Report: June 18, 1993

Date Received: June 11, 1993

Project: 1-0428-1, Dead River

**RESULTS FROM THE ANALYSIS OF THE PRODUCT SAMPLE  
FOR FINGERPRINT CHARACTERIZATION  
BY CAPILLARY GAS CHROMATOGRAPHY  
USING A FLAME IONIZATION DETECTOR (FID)  
AND ELECTRON CAPTURE DETECTOR (ECD)**

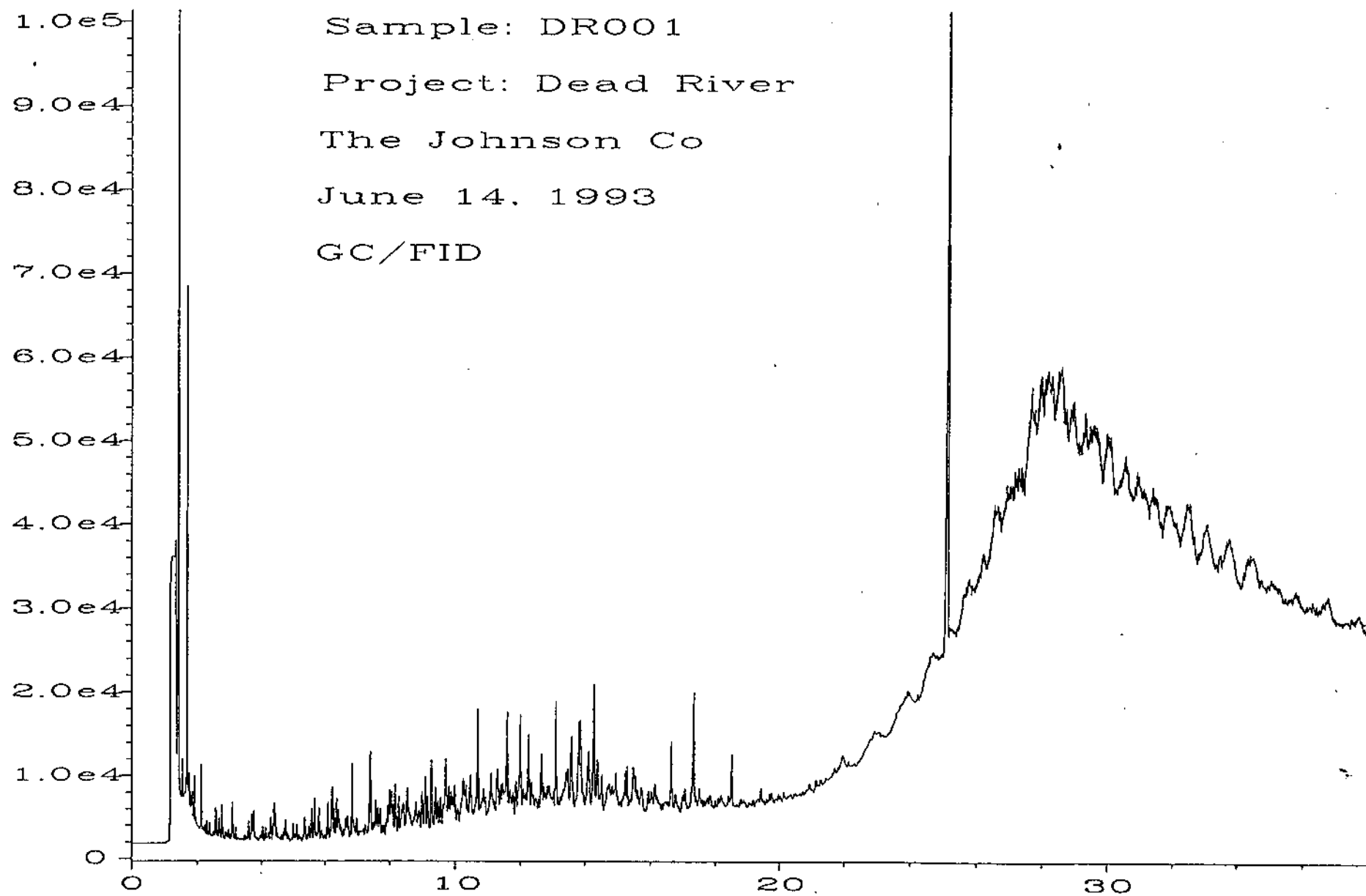
Sample #

GC Characterization

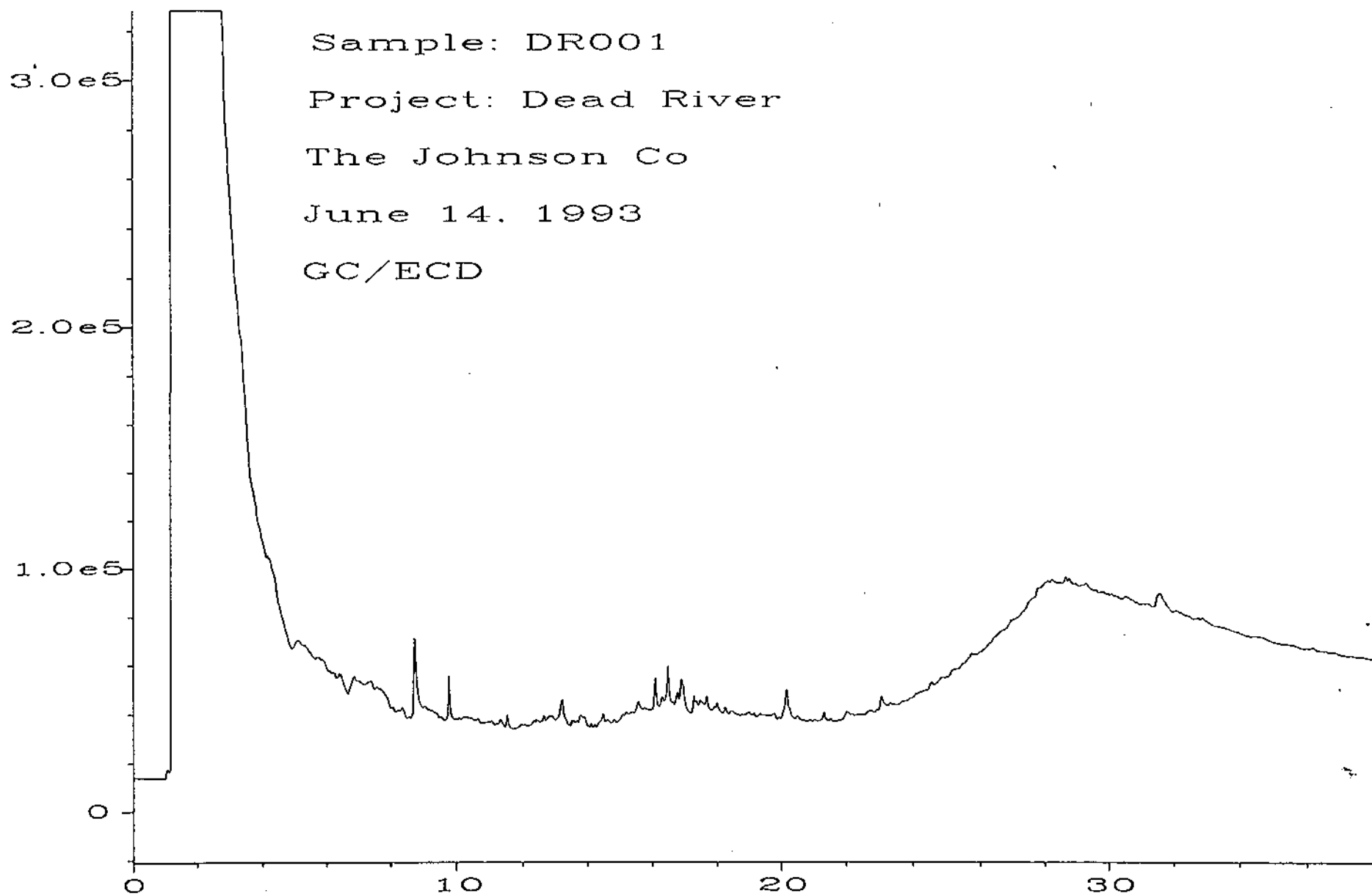
DR001

The GC trace using the flame ionization detector (FID) showed the presence of medium boiling compounds. The patterns displayed by these peaks are indicative of kerosene or highly degraded gasoline. The medium boiling compounds appeared as a ragged pattern of peaks eluting from *n*-C<sub>6</sub> to *n*-C<sub>20</sub> showing a maximum near *n*-C<sub>14</sub>. An irregular pattern of the *n*-alkanes was seen. The medium boiling material appears to have undergone biological degradation. The large peak seen near 25 minutes in the GC/FID trace is pentacosane, added as a quality assurance check for this GC analysis.





Sig. 1 in C:\HPCHEM\4\DATA\06-14-93\020F0501.D



## CHAIN OF CUSTODY RECORD

No. 1241

Client/Project Name <b>DEAD RIVER</b>			Project Location <b>RUTLAND, VT</b>			ANALYSES FINGER PRINT DUPLICATE IF NEEDED					
Project No. <b>1-0478-1</b>			Field Logbook No. <b>PTD-002</b>								
Sampler: (Signature) <i>Paul T. Daly</i>			Chain of Custody Tape No. <b># 878</b>								
Sample No./ Identification	Date	Time	Lab Sample Number	Type of Sample	REMARKS						
DR001	6/10/93	13:50	40810	Product	X						40810
DR002	6/10/93	13:50	40811	Product	X						40811
Relinquished by: (Signature) <i>Paul T. Daly</i>				Date 6/10/93	Time 4:15	Received by: (Signature) <i>[Signature]</i>				Date 6/10/93	Time 4:15
Relinquished by: (Signature) <i>[Signature]</i>				Date 6/10/93	Time 4:45	Received by: (Signature) <i>[Signature]</i>				Date 6/11/93	Time 11:05
Relinquished by: (Signature) <i>[Signature]</i>				Date	Time	Received for Laboratory: (Signature)				Date	Time
Sample Disposal Method:				Disposed of by: (Signature)						Date	Time
SAMPLE COLLECTOR  5 State Street Montpelier, VT 05602 (802) 229-4600 Fax: (802) 229-5876				ANALYTICAL LABORATORY  <b>THE JOHNSON COMPANY, INC.</b> <b>Environmental Sciences and Engineering</b>							

1-0839-1  
GB  
VRB



LABORATORY REPORT

P.O. Box 339  
Randolph, Vermont 05060-0339  
(802) 728-6313

CLIENT NAME: The Johnson Company

LABORATORY NO.: 3-1261

ADDRESS: 5 State Street  
Montpelier, VT 05602

PROJECT NO.: 78611

SAMPLE LOCATION: HA Eddy CS - Rutland, VT

DATE OF SAMPLE: 7/28/93

DATE OF RECEIPT: 7/29/93

ATTENTION: Greg Johnson

DATE OF ANALYSIS: 8/5-11/93

DATE OF REPORT: 8/18/93

RECEIVED  
AUG 15 1993  
THE JOHNSON CO  
MONTPELIER, VT 05602

HA Eddy Bulk Storage  
(ug/L micrograms per liter, ppb)

PARAMETER

BS-Field

OS-1

OS-2

OS-3

BS-1

BS-3

Methyl Tertiary Butyl Ether

BPQL BPQL BPQL BPQL 4 120

Benzene

BPQL 6 BPQL BPQL BPQL 50

Toluene

BPQL BPQL 4 2 BPQL BPQL

Ethylbenzene

BPQL BPQL BPQL BPQL BPQL BPQL

Total Xylenes

BPQL 46 BPQL BPQL BPQL BPQL

BTEX

BPQL 52 4 2 BPQL 50

Chlorobenzene

BPQL BPQL BPQL BPQL BPQL BPQL

1,2-Dichlorobenzene

BPQL BPQL BPQL BPQL BPQL BPQL

1,3-Dichlorobenzene

BPQL BPQL BPQL BPQL BPQL BPQL

1,4-Dichlorobenzene

BPQL BPQL BPQL BPQL BPQL BPQL

Surrogate % Recovery

93% 108% 92% 91% 91% 93%

EPA Method 8020.

BPQL = Below Practical Quantitation Limits, 1 ug/L, except as noted.

Post-It <sup>®</sup> brand fax transmittal memo 7671		# of pages = 4
To: Greg Johnson	From: Jim Merrill	
Co: Johnson Co	Co: Scitest	
Dept:	Phone # 728 6313	
Fax # 1-229-5876	Fax #	

Respectfully submitted,  
SCITEST, INC.

Roderick J. Lamothe  
Laboratory Director

RJL/ph

Page 1 of 4

# LABORATORY REPORT

CLIENT NAME: The Johnson Company  
ADDRESS: 5 State Street  
Montpelier, VT 05602  
SAMPLE LOCATION: HA Eddy CS - Rutland, VT  
ATTENTION: Greg Johnson

LABORATORY NO.: 3-1261  
PROJECT NO.: 78611  
DATE OF SAMPLE: 7/28/93  
DATE OF RECEIPT: 7/29/93  
DATE OF ANALYSIS: 8/5-11/93  
DATE OF REPORT: 8/18/93

HA Eddy Bulk Storage  
(ug/L micrograms per liter, ppb)

## PARAMETER

	<u>BS-4</u>	<u>BS-101</u>	<u>BS-102</u>	<u>OS-103</u>	<u>S-2</u>
Methyl Tertiary Butyl Ether	30	BPQL	BPQL	230	BPQL
Benzene	3	4	2	47	3
Fluorene	BPQL	3	BPQL	210	3
Ethylbenzene	BPQL	2	BPQL	1100	4
Total Xylenes	BPQL	BPQL	BPQL	4500	34
TEX	3	9	2	5857	44
Chlorobenzene	BPQL	BPQL	BPQL	<10	BPQL
1,2-Dichlorobenzene	BPQL	BPQL	BPQL	<10	BPQL
3-Dichlorobenzene	BPQL	BPQL	BPQL	<10	BPQL
1,4-Dichlorobenzene	BPQL	BPQL	BPQL	<10	BPQL
Surrogate % Recovery	89%	101%	100%	94%	97%

EPA Method 8020.

BPQL = Below Practical Quantitation Limits, 1 ug/L, except as noted.

Note 1: Late eluting peaks: S-2, BS-101, BS-102, OS-103.

# LABORATORY REPORT

CLIENT NAME: The Johnson Company  
 SITE LOCATION: HA Eddy CS - Rutland, VT  
 LABORATORY NO: 3-1261  
 PROJECT NO: 78611

DATE OF SAMPLE: 7/28/93  
 DATE OF RECEIPT: 7/29/93  
 DATE OF ANALYSIS: 8/5-11/93  
 DATE OF REPORT: 8/18/93

PARAMETER	CS-Field	CS 101	CS 102	CS 103
Chloromethane	BPQL	BPQL	BPQL	BPQL
Bromoform	BPQL	BPQL	BPQL	BPQL
Bromomethane	BPQL	BPQL	BPQL	BPQL
Dibromochloromethane	BPQL	BPQL	BPQL	BPQL
Vinyl Chloride	BPQL	BPQL	BPQL	BPQL
1-Chloroethylvinyl Ether	BPQL	BPQL	BPQL	BPQL
Chloroethane	BPQL	BPQL	BPQL	BPQL
Methylene Chloride	BPQL	BPQL	BPQL	BPQL
Trichloroethylene	BPQL	BPQL	BPQL	BPQL
Trichlorofluoromethane	BPQL	BPQL	BPQL	BPQL
1,1-Dichloroethene	BPQL	BPQL	4	BPQL
1,1-Dichloroethane	BPQL	BPQL	BPQL	BPQL
cis or trans-1,2-Dichloroethylene	BPQL	BPQL	BPQL	BPQL
Chloroform	BPQL	BPQL	BPQL	BPQL
1,2-Dichloroethane	BPQL	BPQL	BPQL	BPQL
1,1,1-Trichloroethane	BPQL	BPQL	BPQL	BPQL
Carbon Tetrachloride	BPQL	BPQL	BPQL	BPQL
Bromodichloromethane	BPQL	BPQL	BPQL	BPQL
1,2-Dichloropropane	BPQL	BPQL	BPQL	BPQL
trans-1,3-Dichloropropene	BPQL	BPQL	BPQL	BPQL
cis-1,3-Dichloropropene	BPQL	BPQL	BPQL	BPQL
1,1,2,2-Tetrachloroethane	BPQL	BPQL	BPQL	BPQL
trans-1,1,2-Trichloroethane	BPQL	BPQL	BPQL	BPQL
Tetrachloroethylene	BPQL	BPQL	BPQL	BPQL
MTBE (Methyl Tert Butyl Ether)	BPQL	3100	2700 *	310
Benzene	BPQL	9200	27	530
Toluene	BPQL	9600	2	35
Ethylbenzene	BPQL	1400	BPQL	44
Chlorobenzene	BPQL	BPQL	BPQL	BPQL
1,4-Dichlorobenzene	BPQL	BPQL	BPQL	BPQL
1,3-Dichlorobenzene	BPQL	BPQL	BPQL	BPQL
1,2-Dichlorobenzene	BPQL	BPQL	BPQL	BPQL
Aylenes	BPQL	7100	BPQL	110
Surrogate % Recovery (8010/8020)	101/88%	100/93%	102/110%	104/97%

*Concave  
 S. for  
 data*

cPA Method 8010/8020; all results reported as ug/L or ppb.

BPQL = Below Practical Quantitation Limit: 5 ppb for Bromoform & 2-Chloroethylvinyl Ether,  
 1 ppb for All other parameters.

Note: Many miscellaneous peaks found in CS 102, also MTBE was above working range of curve on this sample.

# LABORATORY REPORT

CLIENT NAME: The Johnson Company  
 SITE LOCATION: HA Eddy CS - Rutland, VT  
 LABORATORY NO: 3-1261  
 PROJECT NO: 78611

DATE OF SAMPLE: 7/28/93  
 DATE OF RECEIPT: 7/29/93  
 DATE OF ANALYSIS: 8/5-11/93  
 DATE OF REPORT: 8/18/93

PARAMETER	CS-104	CS 106	TRIP BLANK
Chloromethane	BPQL	BPQL	BPQL
Bromoform	BPQL	BPQL	BPQL
Bromomethane	BPQL	BPQL	BPQL
Dibromochloromethane	BPQL	BPQL	BPQL
Vinyl Chloride	BPQL	BPQL	BPQL
2-Chloroethylvinyl Ether	BPQL	BPQL	BPQL
Chloroethane	BPQL	BPQL	BPQL
Methylene Chloride	BPQL	BPQL	BPQL
Trichloroethylene	BPQL	BPQL	BPQL
Trichlorofluoromethane	BPQL	BPQL	BPQL
1,1-Dichloroethene	BPQL	BPQL	BPQL
1,1-Dichloroethane	BPQL	BPQL	BPQL
c or t-1,2-Dichloroethylene	BPQL	BPQL	BPQL
Chloroform	BPQL	BPQL	BPQL
1,2-Dichloroethane	BPQL	BPQL	BPQL
1,1,1-Trichloroethane	BPQL	BPQL	BPQL
Carbon Tetrachloride	BPQL	BPQL	BPQL
Bromodichloromethane	BPQL	BPQL	BPQL
1,2-Dichloropropane	BPQL	BPQL	BPQL
1,3-Dichloropropene	BPQL	BPQL	BPQL
c-1,3-Dichloropropene	BPQL	BPQL	BPQL
1,1,2,2-Tetrachloroethane	BPQL	BPQL	BPQL
1,1,2-Trichloroethane	BPQL	BPQL	BPQL
Tetrachloroethylene	BPQL	BPQL	BPQL
MTBE (Methyl Tert Butyl Ether)	BPQL	240	BPQL
Benzene	BPQL	160	BPQL
Toluene	BPQL	3	BPQL
Ethylbenzene	BPQL	BPQL	BPQL
Chlorobenzene	BPQL	BPQL	BPQL
1,4-Dichlorobenzene	BPQL	BPQL	BPQL
1,3-Dichlorobenzene	BPQL	BPQL	BPQL
1,2-Dichlorobenzene	BPQL	BPQL	BPQL
Xylenes	BPQL	BPQL	BPQL
Surrogate % Recovery (8010/8020)	104/98%	105/92%	106/95%

EPA Method 8010/8020; all results reported as ug/L or ppb.

BPQL - Below Practical Quantitation Limit: 5 ppb for Bromoform & 2-Chloroethylvinyl Ether,  
1 ppb for All other parameters.

**Appendix D**

**UST Removal Forms  
for 1986 and 1990 Tank Removals**



1-0839-1

cc G.B.J.

BUSINESS NAME

A.A. Eddy CO.

ADDRESS

SpruceRutland

OWNER

ADDRESS

NUMBER OF TANKS REMOVED

CONDITION OF TANKS

1. 1 M Good

2.

4.

7.

SOIL CONTAMINATED?

Yes 160 - 480 PPM

MONITORING WELL INSTALLED?

Yes

WHERE WAS THE CONTAMINATED SOIL REMOVED TO?

NO TANK WAS TO BEReinstalled Allowed soil to be put back in19810 This is located in the center of AN OIL  
BULK PLANT

CC:

Fire Prevention Division, Department of Labor &amp; Industry

Hazardous Materials Management Program

no notifi found

VERM.

DEPARTMENT OF ENVIRONMENTAL CONSERVATION  
UNDERGROUND STORAGE TANK PROGRAM  
TANK PULL FORM

1-0839-1

cc GBT

TODAY'S DATE: 10/24/90

DATE OF REMOVAL: Same

INSPECTOR: MR

BUSINESS NAME: H. A. Eddy

ADDRESS OF BUSINESS: 148 Spruce St Rutland

OWNER OF TANK(S):

ADDRESS OF OWNER: Same

TANK #	PRODUCT	SIZE	CONDITION
1)	GAS	1000	Good
2)			
3)			
4)			
5)			
6)			
7)			

TANKS STILL ON SITE?

WHAT TYPE?

IN SERVICE?

REPLACEMENTS: NO HOW MANY?

WHAT TYPE?

RECEPTORS: SOILS GROUNDWATER

SURFACE WATERS

RESIDENTIAL

SOIL TYPE: Sand w/ underlying clay

CONTAMINATED SOILS: ( YES NO ) AMOUNT:

CONTAMINATED STOCKPILED SOILS: ( YES NO ) AMOUNT:

MOVED TO:

DEGREE OF CONTAMINATION: (PID READINGS)

PID SCHEDULE:

MONITOR WELLS INSTALLED? ( YES NO )

HOW MANY?

FREE PHASE PRODUCT ENCOUNTERED? ( YES NO )

AMOUNT:

WHY IS TANK BEING REMOVED? Closed

INITIAL PRIORITY: HIGH MEDIUM LOW

LOW/CLOSED

SITE MAP ON BACK? ( YES NO )

SIGNATURE: Richard Munson

OWNER OR OWNER'S AUTHORIZED REPRESENTATIVE

VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION  
UNDERGROUND STORAGE TANK PROGRAM  
103 SOUTH MAIN STREET  
WATERBURY, VERMONT 05671-0404  
(802) 244-8702

=====

Date of Removal: 7/29/93 Date of Assessment: 7/29/93  
Person & Company Doing Assessment: THE JOHNSON COMPANY, GR. EDDY, B. JOHNSON  
Telephone Number: 802-229-4600

Business Name Where Tank(s) Located: HA EDDY OIL COMPANY

Number of Employees:

Street Address & Town/City: 140 SPRUCE ST  
RUTLAND, VT

Owner of Tank(s): SAME AS ABOVE

Address:

Town/City:

Contact Person:

Phone Number:

UST Facility ID Number:

Tank #	Product	Size	Condition
1	#2 FUEL OIL	1000 GAL	1-1/2" HOLE IN BOTTOM
2	WASTE OIL	550 GAL	9-1/2" TO 1" HOLES
3	OIL WATER SEPARATOR	275 GAL	1 - PIN HOLE
4	#2 FUEL OIL	550 GAL	MANY HOLES

Reason for Tank Removal (check one): ☒ abandoned ☐ routine replacement  
☐ tank or piping leaking ☒ liability

Replacement Tank(s)? ☐ yes ☒ no Number of Replacement Tanks: \_\_\_\_\_

DEC UST Permit(s) Obtained? ☐ yes ☒ no

DEC-Permitted Tank(s) Still On-Site? ☐ yes ☒ no Number of Tanks: \_\_\_\_\_

Out of Service Tank(s) On-Site? ☐ yes ☒ no Number of Tanks: \_\_\_\_\_

Heating Oil Tank(s) On-Site? ☐ yes ☒ no No. of Tanks: \_\_\_\_\_ Size(s): \_\_\_\_\_

Any Waste Pumpage? ☒ yes ☐ no Estimated Volume: 1500 GALLONS

Transported By: SAFETY KLEEN

Size of Excavation (ft<sup>3</sup>): 400 TOTAL Depth: 5'-6" Soil Type: CRUSHED STONE GRAVEL, CLAY

Concentrations Detected with PID: Peak = 200 PPM Average = 12-200 PPM

Type of PID: OVM 580B

Number of Readings (please put locations on attached drawing): CONTINUOUS

Calibration Info. (date, time, type of gas): 7/29/93 8:45 AM ZERO GAS 100 PPM

Free Phase Product Encountered? ☒ yes ☐ no Approx. Amount: \_\_\_\_\_

Cont. Soils Stockpiled? ☒ yes ☐ no Amount (yd<sup>3</sup>): 2-3 YD<sup>3</sup>

Cont. Soils Backfilled? ☒ yes ☐ no Amount (yd<sup>3</sup>): 45 YD<sup>3</sup> (TOTAL)

Groundwater Encountered? ☒ yes ☐ no Depth to Groundwater: 4'

Monitoring Wells Installed? ☒ yes ☐ no Number: 11 Screen Depth: 15' +/-

On-Site Drinking Well? ☐ yes ☒ no (if yes: ☐ rock ☐ gravel ☐ spring)

Public Water Supply Well(s) Within 1/4 Mile? ☐ yes ☐ no

Distance to nearest: \_\_\_\_\_

Private Water Supply Well(s) Within 1/4 Mile? ☐ yes ☐ no How Many? \_\_\_\_\_

Samples Collected for Laboratory Analysis? ☒ yes ☒ no How Many? NO SAMPLES

[check all that apply: ☐ soil ☐ groundwater ☐ drinking water] COLLECTED

Receptors Affected (check all that apply):

☐ soil ☐ residential; # of houses/people: \_\_\_\_\_

☐ groundwater ☐ surface water; name/type of water body: \_\_\_\_\_

Signature of Owner or Authorized Representative: \_\_\_\_\_

Date: \_\_\_\_\_

Signature of Person Performing Site Assessment: \_\_\_\_\_

Date: 7/30/93

\*\*\* ATTACH OBSERVATIONS, CONCLUSIONS, AND DRAWING ON A SEPARATE PAGE \*\*\*

White - DEC File Copy

Yellow - DEC File Copy

Pink - Owner Copy

VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION  
UNDERGROUND STORAGE TANK PROGRAM  
103 SOUTH MAIN STREET  
WATERBURY, VERMONT 05671-0404  
(802) 244-8702

\*\*\*\*\*  
Date of Removal: 7/30/93 Date of Assessment: 7/30/93  
Person & Company Doing Assessment: THE JOHNSON COMPANY  
Telephone Number: 802-229-4600

Business Name Where Tank(s) Located: A+A WELDING  
Number of Employees:  
Street Address & Town/City: 154 GRANGER ST  
RUTLAND, VT 05701

Owner of Tank(s): HA EDDY OIL CO  
Address: 148 SPRUCE ST  
Town/City: RUTLAND VT 05701  
Contact Person:  
Phone Number:

UST Facility ID Number:

Tank #	Product	Size	Condition
1	WASTE OIL	2000 GAL	GOOD
2			
3			
4			

Reason for Tank Removal (check one): ☐ abandoned ☐ routine replacement  
☐ tank or piping leaking ☒ liability

Replacement Tank(s)? ☐ yes ☒ no Number of Replacement Tanks: \_\_\_\_\_

DEC UST Permit(s) Obtained? ☐ yes ☒ no

DEC-Permitted Tank(s) Still On-Site? ☐ yes ☒ no Number of Tanks: \_\_\_\_\_

Out of Service Tank(s) On-Site? ☐ yes ☒ no Number of Tanks: \_\_\_\_\_

Heating Oil Tank(s) On-Site? ☐ yes ☒ no No. of Tanks: \_\_\_\_\_ Size(s): \_\_\_\_\_

Any Waste Pumpage? ☒ yes ☐ no Estimated Volume: 150 GALLONS  
Transported By: SAFETY KLEEN

Size of Excavation (ft<sup>3</sup>): 80 Depth: 4' Soil Type: GRAVEL  
Concentrations Detected with PID: Peak = 1000 PPM Average = 700-900 PPM  
Type of PID: DVM 600B

Number of Readings (please put locations on attached drawing): CONTINUOUS  
Calibration Info. (date, time, type of gas): 7/30/93 8:20 AM / ZERO GAS / 100 PPM / 100 PPM

Free Phase Product Encountered? ☐ yes ☒ no Approx. Amount: \_\_\_\_\_

Cont. Soils Stockpiled? ☐ yes ☒ no Amount (yd<sup>3</sup>): \_\_\_\_\_

Cont. Soils Backfilled? ☒ yes ☐ no Amount (yd<sup>3</sup>): 10 CU YDS

Groundwater Encountered? ☐ yes ☒ no Depth to Groundwater: \_\_\_\_\_

Monitoring Wells Installed? ☐ yes ☒ no Number: \_\_\_\_\_ Screen Depth: \_\_\_\_\_

On-Site Drinking Well? ☐ yes ☒ no (if yes: ☐ rock ☐ gravel ☐ spring)

Public Water Supply Well(s) Within 1/4 Mile? ☐ yes ☐ no

Distance to nearest: \_\_\_\_\_

Private Water Supply Well(s) Within 1/4 Mile? ☐ yes ☐ no How Many? \_\_\_\_\_

Samples Collected for Laboratory Analysis? ☒ yes ☐ no How Many? 1 WITH DUP

(check all that apply: ☒ soil ☐ groundwater ☐ drinking water) Analysis From Client Approval.

Receptors Affected (check all that apply):

☒ soil ☐ residential; # of houses/people: \_\_\_\_\_  
☐ groundwater ☐ surface water; name/type of water body: \_\_\_\_\_

Signature of Owner or Authorized Representative: \_\_\_\_\_

Date: \_\_\_\_\_

Signature of Person Performing Site Assessment: \_\_\_\_\_

Date: July 30, 1993

\*\*\* ATTACH OBSERVATIONS, CONCLUSIONS, AND DRAWING ON A SEPARATE PAGE \*\*\*

White - DEC File Copy

Yellow - DEC File Copy

Pink - Owner Copy

**Appendix E**  
**Product Recovery Devices**

*P J Products Co.*

30 GREENFIELD LANE — SCITUATE — MASSACHUSETTS 02066

Tel. (617) 545-1685

May 17, 1993

J. Behrsing  
Design Engineer  
The Johnson Company, Inc.  
5 State Street  
Montpelier, VT 05602

RECEIVED  
MAY 19 1993  
THE JOHNSON CO., INC.  
MONTPELIER, VERMONT

Dear Mr./Ms. Behrsing:

Thank you for your recent inquiry through Pollution Equipment News on our Hydrocarbon Recovery unit.

The PETROPORE™ can readily collect liquid hydrocarbons such as gasoline, diesel and #2 fuel oil once you place the unit into your recovery well or sump. The floating PETROPORE™ collects free floating product that can be recovered by manually bailing or automatically pumping by air injection or positive displacement.

Enclosed, please find descriptive literature on the PETROPORE™. Please contact us with your current applications.

Thank you again for your interest and we look forward to being of service to you.

Very truly yours,

  
Peter Tolan

Enclosures

# *P J PRODUCTS COMPANY INTRODUCES . . . .*

## The PETROPORE<sup>TM</sup>

A liquid Hydrocarbon Recovery system  
for use within recovery wells and sumps

### *FEATURES:*

- ★ No moving parts in the basic system
- ★ Floats - not affected by ground water fluctuations
- ★ Passive
- ★ Rejects water
- ★ Manual or automatic operation
- ★ Greatly reduces soil smearing

For further information please contact:

Peter Tolan  
*PJ Products Company*  
30 Greenfield Lane  
Scituate, MA 02066  
(617) 545-1685

# PETROPORE™

A LIQUID HYDROCARBON RECOVERY  
SYSTEM FOR COLLECTION OF  
FREE PRODUCT FLOATING ON THE  
GROUNDWATER

## FEATURES:

- NO MOVING PARTS IN THE BASIC SYSTEM
- FLOATS - NOT AFFECTED BY GROUND WATER FLUCTUATIONS
- PASSIVE OPERATION
- REJECTS WATER
- GREATLY REDUCES HYDROCARBON-INDUCED SOIL SMEARING
- MANUAL OR AUTOMATIC OPERATION

## TYPICAL RECOVERY RATES:

FOR BOTH MODELS AS MEASURED IN A 4" PIPE  
WITH FLOATING GASOLINE LAYER

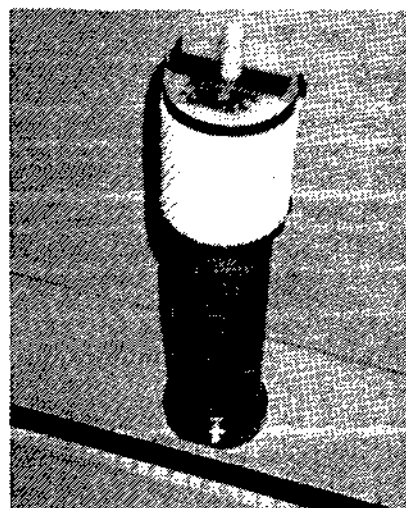
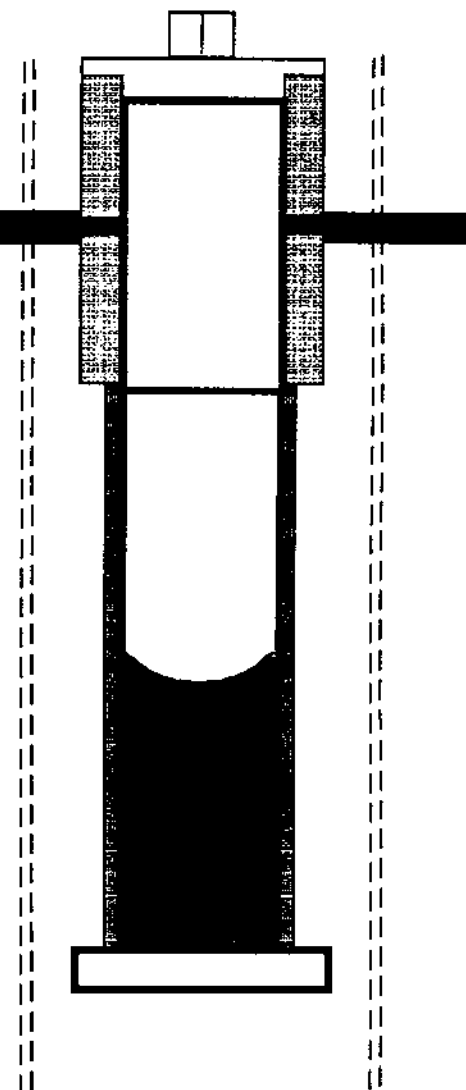
<u>MODEL NO.</u>	<u>DIA.</u>	<u>RATE</u>
50	1.5 inches	1ml/min. per .1 inch of product
250	2.5 inches	>2ml/min. per .1 inch of product

NOTE: MODEL NUMBER CORRESPONDS  
TO RESERVOIR HOLDING CAPACITY  
IN MILLILITERS

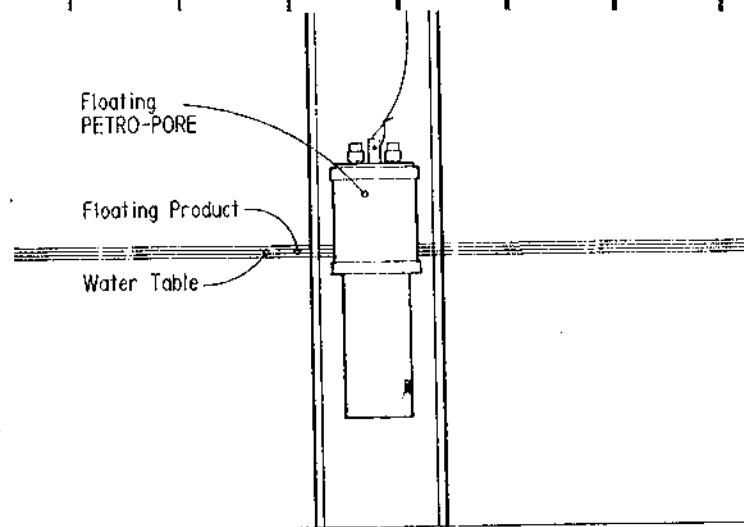
MODEL 250  
(Shown at Right)

PJ PRODUCTS CO. 30 GREENFIELD LANE • SCITUATE • MA 02066  
TELEPHONE: (617) 545-1685

Typical systems on reverse side

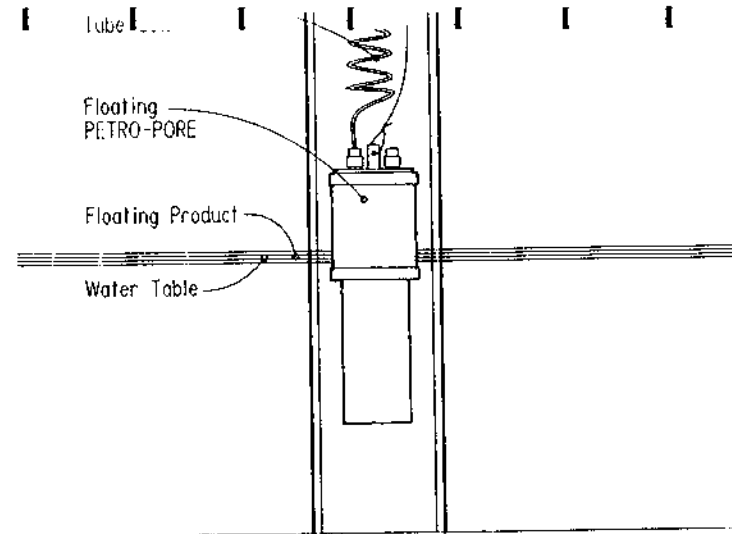






**BASIC SYSTEM**  
Product Removed From PETRO-PORE  
By Raising And Pouring  
Out Manually.

Figure 1



**AUTOMATIC SYSTEM**  
Product Removed From PETRO-PORE  
By Air Injection.

Figure 2

# ENVIRO PRODUCTS

## Environmental Equipment and Supplies

1431 Rensen Street, Suite A • Lansing, Michigan 48910

517) 887-1222 • 1-800-ENVIRO 4 • Fax: (517) 887-8374

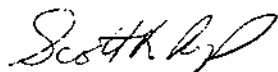
Dear Sir or Madam,

Thank you for requesting additional information on the PetroTrap. Enclosed you will find Enviro Products, Inc's PetroTrap literature. The selling price for both the 2" and the 4" PetroTrap is \$885.00, with some quantity discounts being offered.

If we can be of any further assistance to you, please give us a call at 1-800-ENVIRO-4 (1-800-368-4764).

Enviro Products, Inc looks forward to doing business with you and your company in the near future.

Sincerely,



Scott R. Knop  
President

SRK/pjg

RECEIVED

MAR 16 1992

THE JOHNSON CO., INC.  
MONTPELIER, VERMONT

# PetroTrap™

Introducing PetroTrap™—a unique passive skimmer system which incorporates the use of an active buoy assembly. This buoy assembly removes free product to a sheen. The skimming action of our system is equally effective with water table fluctuations as great as 24 inches.

PetroTrap™ can be installed in minutes and is ideal on sites where free product recovery must begin *immediately*. The system employs the use of a collection canister, eliminating the need to run electricity or air lines to the well.

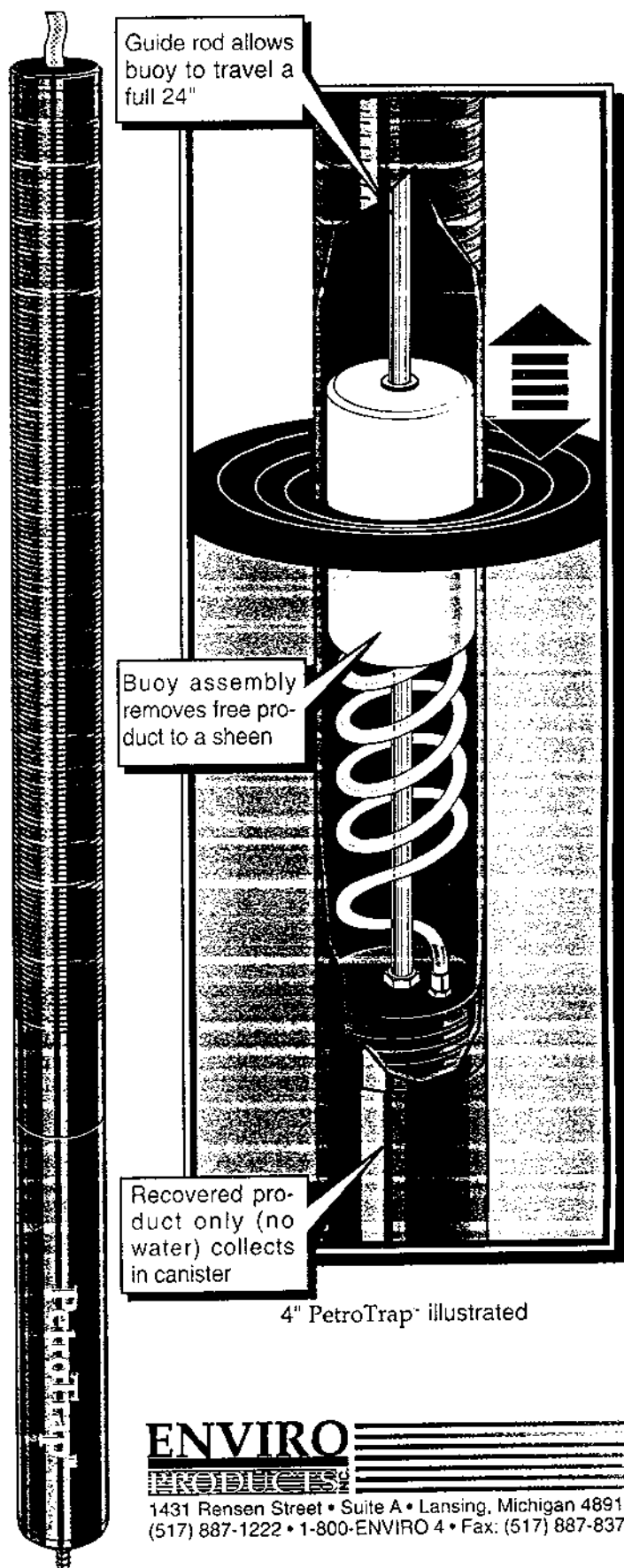
PetroTrap™ is lowered into the well much the same way as a bailer, then is suspended using the lanyard/vent tube (standard 25' length). The unit begins recovering product as soon as product is available. Periodically, the canister is emptied manually through the drain valve at the bottom of the canister.

## Features:

- No Power Source Required
- Installation Takes Only Minutes
- Effective with Petroleum Fuels
- Ideal Monitoring Device to Indicate Migrating Plumes
- Available for 2" and 4" Wells

## Specifications:

	4" PetroTrap	2" PetroTrap
Dimen	3.5" Dia/61.0" Lth	1.75" Dia/76.88" Lth
Weight	18 Lbs	6.25 Lbs
Materials	Polyvinylchloride (PVC) Stainless Steel 303 Series	Polyvinylchloride (PVC) Stainless Steel 303 Series
Const	UHMW Polyethylene Brass	UHMW Polyethylene Brass
Volume	2.0 Liters/5.3 Gallons (Other Volumes Optional)	0.7 Liters/2.0 Gallons (Other Volumes Optional)



4" PetroTrap illustrated

*Enviro Products  
Means Service!*

**ENVIRO  
PRODUCTS**

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(517) 887-1222 • 1-800-ENVIRO 4 • Fax: (517) 887-8374

# NeverFull™

The NeverFull™ tank overflow protector prevents costly spills by removing power from a pump motor when liquid level in a storage tank approaches a full condition.

Level is continuously monitored via an intrinsically safe signal applied to a float switch assembly. The Buna and Brass float switch assembly screws vertically into any 2" NPT tank bung opening and attaches to the control panel with the supplied 50' cord.

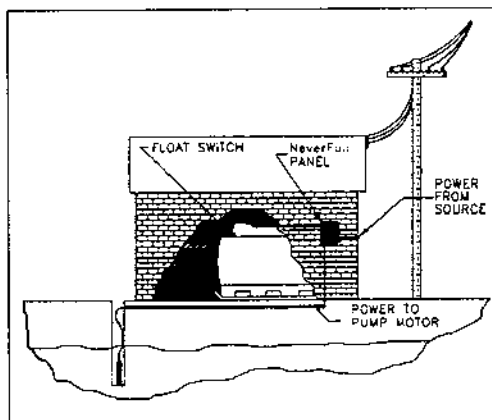
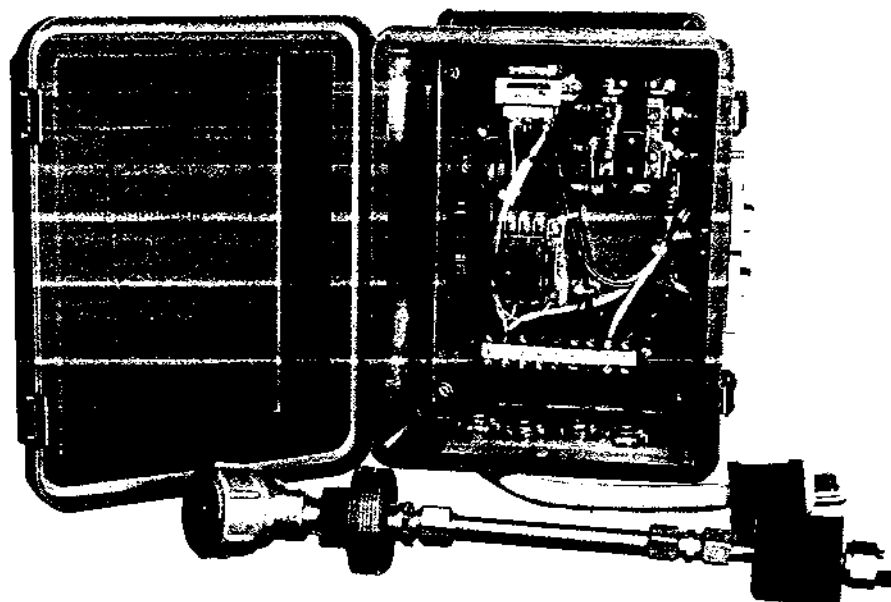
The pump motor attaches to the control panel by plugging into a weatherproof outlet or hard wiring directly to an internal terminal block. The motor is protected by a 20A manual reset circuit breaker.

## Features

- 120 VAC and 240 VAC models are available
- Installation takes only minutes
- Suitable for outdoor installation
- Prevents liability from secondary spill
- Eliminates repetitive site visits
- Can also monitor pressure, temperature and flow (with optional sensors)

**Full Product Warranty**  
**In Stock for Immediate Delivery**  
**Call**

**for Pricing Information**



## SPECIFICATIONS

Outer Dimensions	Weight	Current Rating	Enclosure
9.375" wide 11.375" long 6.75" high	7.5 lbs.	20 AMPS at rated voltage	Fiberglass NEMA 4X with mounting tabs

**ENVIRO**  
**PRODUCTS**

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(517) 887-1222 • 1-800-ENVIRO 4 • Fax: (517) 887-8374

# ***Enviro Products Means Service!***

# PortaPurge™

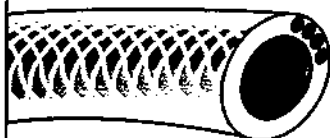
Introducing *PortaPurge* — a portable sampling pump system that has been engineered to be the most efficient sampling pump system on the market.

Reel is constructed of light-weight aluminum & has rolled flanges to protect hose from damage.

Pinlock holds pump in position.

Unique 4-conductor slip ring allows power cable to remain attached while raising or lowering pump.

**Revolutionary...**



Water discharge hose & motor leads are combined for trouble-free operation.

- Extremely durable
- Easy to decontaminate
- Polyethylene construction

*No more fighting with hose & cable!*

## **Redi-Flo2**

**Grundfos Redi-Flo2**

0.0–9.0 GPM. Ideal for sampling, purging, & developing 2" & larger wells.

Engineered termination eliminates fatigue at pump connection.

*Enviro Products  
Means Service!*

**ENVIRO**  
**PRODUCTS**

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(517) 887-1222 • 1-800-ENVIRO 4 • Fax: (517) 887-8374

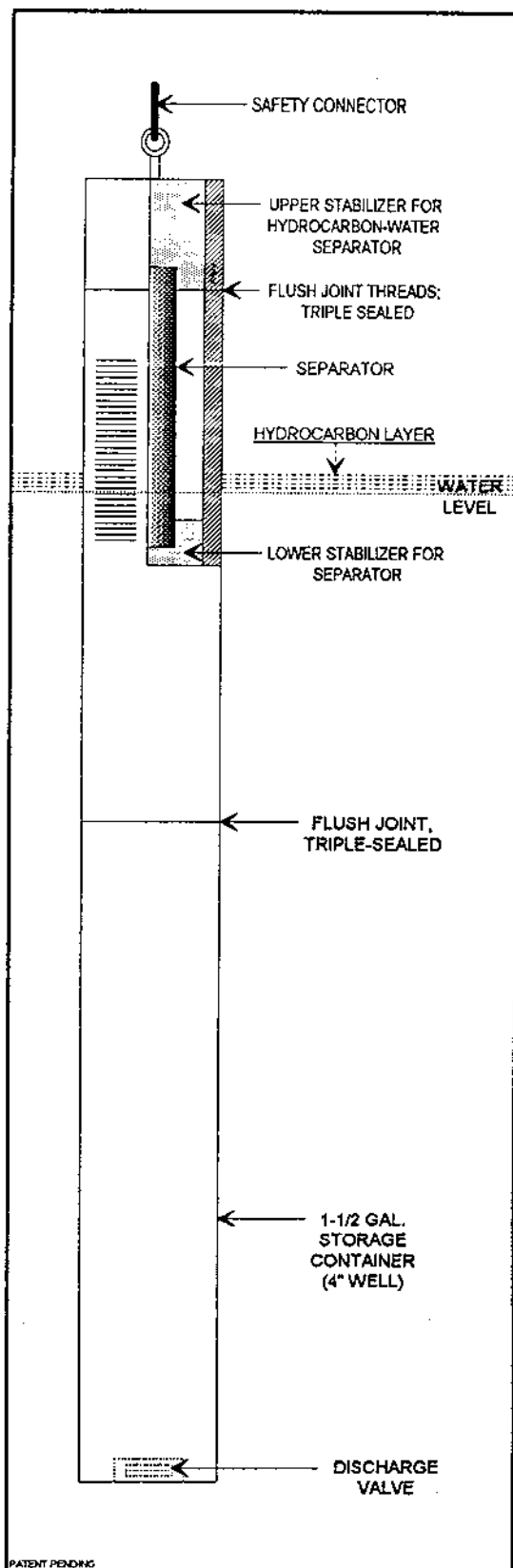
# WELEX ENVIRONMENTAL, INC.

## HYDRO-SKIMMER

The new WELEX Hydrocarbon Skimmer provides a Two-In-One performance that meets E.P.A. standards.... (1.) Monthly ground-water monitoring. (2.) A passive hydrocarbon skimmer that requires no electronics, air compressors or recovery piping.

### WELEX HYDRO-SKIMMER Has:

- ✓ **FILTER ELEMENT** easily cleaned or changed by a field technician to prevent cross contamination and improve the efficiency of the **HYDRO-SKIMMER**.
- ✓ **NO HYDROCARBON BASED (PVC) GLUES** that will leach in water thus giving off contaminants that will set off hydrocarbon detection equipment.
- ✓ **NO MOVING PARTS:** Eliminates springy collection tubes that eventually impede flotation. Eliminates need for vent tubes.
- ✓ **VERSATILITY...** 1. The **HYDRO-SKIMMER** collects only hydrocarbons, making disposal of product less complicated.
- 2. Accessory equipment can be added to make the basic **HYDRO-SKIMMER** a continuous or active system.
- 3. **THREADED CONNECTIONS** allow you to add or remove an extra collection chamber as needed.



WELL DIAMETER	ASSEMBLY LENGTHS		
	64 INCH	96 INCH	128 INCH
2" OR LARGER	.29 GALLON	.51 GALLON	.72 GALLON
	MODEL 201	MODEL 202	MODEL 203
3" OR LARGER	.57 GALLON	1.02 GALLON	1.47 GALLON
	MODEL 301	MODEL 302	MODEL 303
4" OR LARGER	1.33 GALLON	2.34 GALLON	3.36 GALLON
	MODEL 401	MODEL 402	MODEL 403

PATENT PENDING

DISTRIBUTED BY:  
**Tom Wells & Associates**  
**7514 CREEK GLEN**  
**HOUSTON, TEXAS 77095**  
**(713) 463 - 0888**  
**(713) 463 - 7502 FAX**

WELEX ENVIRONMENTAL, INC

HYDRO-SKIMMER INSTALLATION PROCEDURES

- I. Take measurements:
  - A. Total well depth to top of well casing.
  - B. Depth to water.
  - C. Depth to hydrocarbon product.
- II. Attach safety cord to eyebolt at top of Hydro-Skimmer.
- III. SLOWLY lower Hydro-Skimmer into monitor well, allowing it to locate its own buoyancy.
- IV. Remove Hydro-Skimmer from well. The Hydro-Skimmer is preweighted to be buoyant with the water/hydrocarbon interface ideally within two inches into the lower slotted area of the skimmer. If the Hydro-Skimmer is not resting in this position, the following conditions should be considered:
  - A. If the hydrocarbon thickness as measured in Step I exceeds 12", the Hydro-Skimmer will ride above the suggested level but will function properly as it will weight itself when collection of hydrocarbon product begins.
  - B. If the hydrocarbon product is in excess of 6", the Hydro-Skimmer will collect to capacity in approximately 30 minutes, thus requiring the collection chamber to be emptied.
  - C. If water salinity does not allow the Hydro-Skimmer to rest within the recommended water/hydrocarbon area, galvanized washers (included in shipment) may need to be threaded onto the safety connector to weight the unit so that EFFECTIVE collection may take place.
- V. After above adjustments have been made, reinsert the Hydro-Skimmer into monitor well allowing 4" of slack in safety connector between the two eyebolts when the well cap is in its installed position.
- VI. Removal and collection procedures:
  - A. Remove Hydro-Skimmer from monitor well.
  - B. Hold unit upright over recommended hydrocarbon collection container and open valve at base, allowing product to drain into container.

# **Tom Wells & Associates**

7514 Creek Glen • Houston, Texas 77095

(713) 463-0888 • Fax (713) 463-7502

## **PRICE LIST HYDRO SKIMMER**

The prices quoted are Net 30 and are effective February 15, 1993.

Model 201	\$295.00
Model 202	355.00
Model 203	415.00
Model 301	349.00
Model 302	419.00
Model 303	489.00
Model 401	425.00
Model 402	515.00
Model 403	605.00

Filtration Element Replacement \$79.95

(Fits all models above)

2" Locking well cap arranged to tie off safety line \$17.50

4" Locking well cap arranged to tie off safety line \$22.50

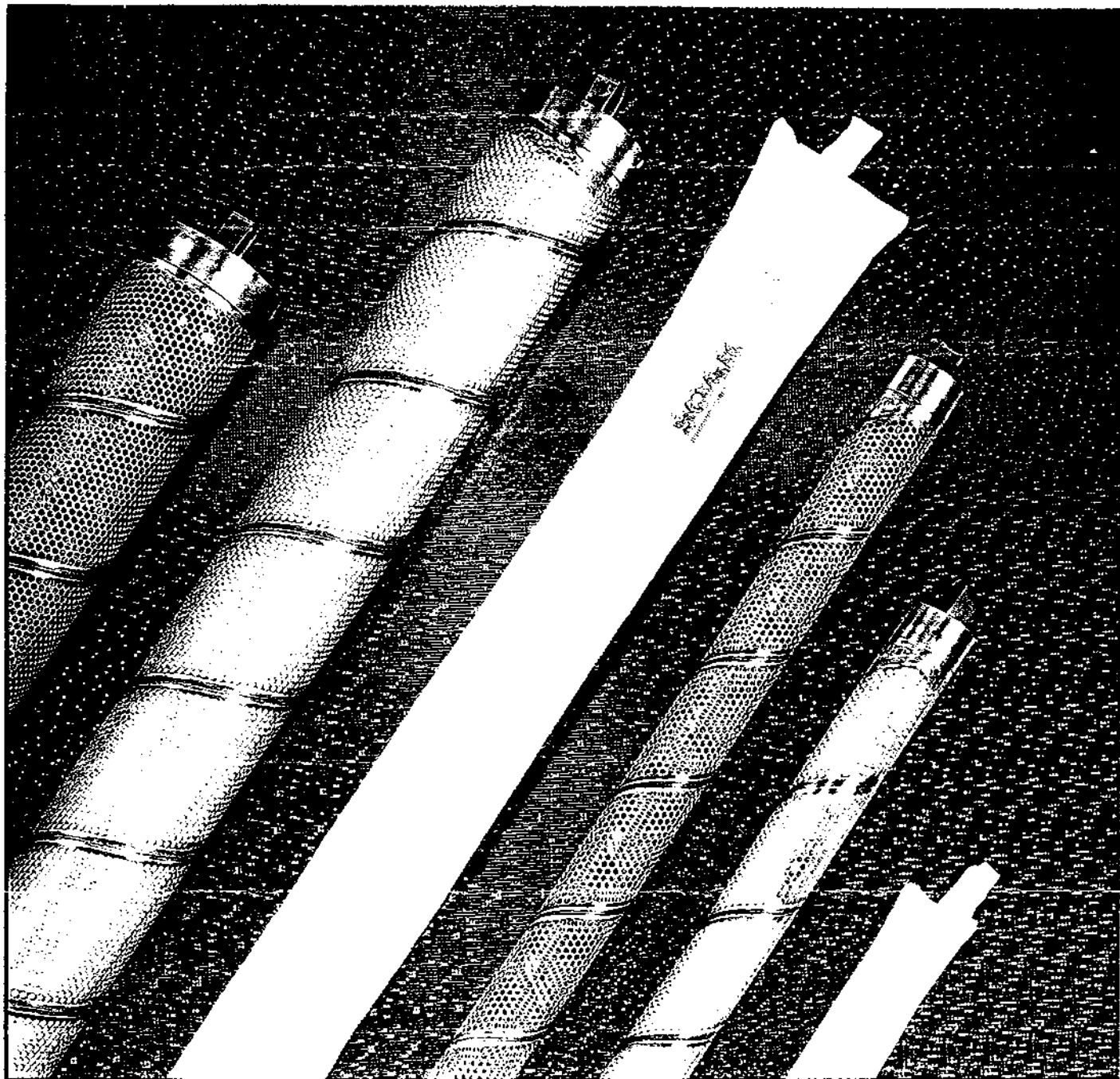
## **QUANTITY DISCOUNTS**

For orders of 6-10 units, a 5% discount is offered.

For orders of 11-20 units, a 10% discount is offered.

For quantity discounts, any variety of models may be ordered and are payable net 30.





When a "think-fast" solution is necessary to safely and effectively remove unwanted petroleum hydrocarbons from groundwater monitoring wells, the proactive answer is a SoakEase™ oil absorbent kit. When placed into the well, SoakEase™ reacts instantly to absorb and contain petroleum hydrocarbons. It repels water, resists chemicals, and helps reduce weight and disposal costs. After having

"bailed" the excess floating product in low yielding formations, SoakEase™ may be left in the well to absorb free product over an extended time. Its 8' length will easily accommodate placement in the water table. SoakEase™ kits are available and available for 2" and 4" wells. Use a SoakEase™ Soaking Kit within the regulatory framework and start removing free product right away, effectively and economically.

**SOAKEASE™**

A SOAKEASE™ kit includes a stainless steel refillable canister and disposable absorbent tubes. It is as easy to use as a bailer and acts as a passive, selective skimmer. It will absorb and help remove a sheen.

SOAKEASE™ is ideal when used as a "contingency pack" and stored at landfill sites, sites containing underground storage tanks or when transported from site to site.

**SOAKEASE™  
SPECIFICATIONS**
**CANISTER:**

Material:	Stainless steel type 304, perforated.
Outside Diameter:	
2" model	1.7" (42 mm), nominal
4" model	3.5" (85 mm), nominal
Length:	3' 3" (1 m)
Net Weight:	
2" model	1.8 lb (0.8 kg)
4" model	3.0 lb (1.4 kg)

**DISPOSABLE ABSORBENT TUBE (REFILL):**

Sorbent material:	Polypropylene. Fibrous material contained in a white fabric sock.
Incompatibility:	Slight degradation may occur if exposed to strong oxidizing agents.

**WARNING:** Not recommended for use with aggressive fluids including strong acids, strong bases, oxidizers, or hazardous materials containment.

Reaction Time: Immediate.

**Rated Sorption:**

3 US gal. per case of 2" tubes	(1 qt per 2" tube)
11 dm <sup>3</sup> per case of 2" tubes	(0.95 dm <sup>3</sup> per 2" tube)
9 US gal. per case of 4" tubes	(3 qt per 4" tube)
34 dm <sup>3</sup> per case of 4" tubes	(2.8 dm <sup>3</sup> per 4" tube)

**WASTE DISPOSAL METHOD:** If unused, the absorbent tube is not a hazard. If saturated, handle it and dispose of it in a manner proper to the contaminant absorbed and in accordance with Federal, State and Local regulations.

*Brainard-Kilman is constantly striving to improve its products and therefore reserves the right to change design, materials, specifications and price without notice.*

**SOAKEASE™**
**ORDERING INFORMATION**

<b>TB2-100</b>	2" SOAKEASE™ Kit. Contains:
	• (1) 2" stainless steel canister with a 2" disposable absorbent tube
	• (15) 2" disposable absorbent refill tubes
	Case dimensions: 7" x 7" x 42" (178 x 178 x 1069 mm)
	Shipping weight: 7 lb (3.2 kg)
<b>TB2-110</b>	2" SOAKEASE™ refill case. Contains:
	(12) 2" absorbent refill tubes per case
	Case dimensions: 4" x 15" x 15" (102 x 102 x 381 mm)
	Shipping weight: 4 lb (1.8 kg)
<b>TB4-100</b>	4" SOAKEASE™ Kit. Contains:
	• (1) 4" stainless steel canister with a 4" disposable absorbent tube
	• (4) 4" disposable absorbent refill tubes
	Case dimensions: 7" x 7" x 42" (178 x 178 x 1069 mm)
	Shipping weight: 8 lb (3.6 kg)
<b>TB4-110</b>	4" SOAKEASE™ refill case. Contains:
	(12) 4" absorbent refill tubes per case
	Case dimensions: 4" x 15" x 15" (102 x 102 x 381 mm)
	Shipping weight: 7 lb (3.2 kg)


**BRAINARD • KILMAN**

2175 West Park Court • P.O. Box 1959 • Stone Mountain, GA 30086 USA • (404) 469-2720 • FAX (404) 498-2841

Northeastern Zone 1-800-233-1943 • Southeastern Zone 1-800-241-9468 • Central Zone 1-800-221-4440

Rocky Mountain Zone 1-800-453-8740 • Pacific Zone 1-800-828-9436



Thank you for your interest in Brainard-Kilman products. The information you requested is attached.

We are a well established, reputable manufacturer and nationwide supplier to the geo-environmental and geo-technical testing markets. We are unique in that we have the resources and technical expertise normally found in leading national organizations, yet, through our network of regional offices and warehouses, we serve our clients with the concern and responsiveness of a local company.

*Our promise is to provide our customers  
with consistent quality in the products we  
sell, and integrity in the service we provide.*

It's easy to buy from Brainard-Kilman. Just use our "FAX-FREE" order form, call one of our toll-free numbers or contact the B-K GeoStore nearest you. We will assist you promptly and courteously.

Sincerely,

Brainard-Kilman Drill Company

Ivan Varlamoff  
Marketing Manager

# ORDER FORM

# FREE

## BRAINARD • KILMAN

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Stone Mountain, GA 30086  
(404)469-2720 • 1-800-241-9468

ORDER BY FAX...TOLL FREE!  
24 HRS A DAY, 7 DAYS A WEEK

## 1-800-833-7018

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TYPE OR PRINT	Name:	_____	Name:	_____	
	Company:	_____	Company:	_____	
	Address:	_____	Address:	_____	
	_____		_____		
	Date:	_____ P.O. No. _____	_____		
	Daytime Phone:	_____	_____		
FAX:	_____ (so we may acknowledge your order)		_____		
Authorized Signature:		_____			

PRICES change from time to time. If the price of an item you order has increased by a reasonable amount, your order will be shipped and billed at the higher price. If the increase is substantial, we will call or write for your permission to ship at the higher price. If you want to be notified of any increase before your order is shipped, check here. ☐

### SHIP VIA:

(preferred method of shipment-truck, UPS, Fed X, etc)

☐ collect ☐ prepay & add ☐ other \_\_\_\_\_

PART NO.	QTY.	UNIT (ea., etc.)	DESCRIPTION	UNIT PRICE	TOTAL PRICE
TB2-100		ea.	2" SoakEase™ Kit		
TB2-110		case	2" SoakEase™ Refills		
TB4-100		ea.	4" SoakEase™ Kit		
TB4-110		case	4" SoakEase™ Refills		
THANK YOU FOR YOUR ORDER					
...from all of us at B-K.					

### PAYMENT METHOD

☐ VISA ☐ MASTERCARD

☐ PAYMENT ENCLOSED

☐ Check ☐ Money Order

☐ C.O.D.

☐ Existing BK Open Account  
Terms 1.5%-15/net 30  
Account No. \_\_\_\_\_

☐ OPEN ACCOUNT-CHARGE

Attach credit application

### TOTAL

Applicable Sales Tax  
will be added to your order

Shipping Charges  
(\$5.00 min.)

TOTAL AMOUNT

AMOUNT ENCLOSED, if any

exp. date ☐ / ☐ / ☐

signature \_\_\_\_\_

### COMMENTS/SPECIAL INSTRUCTIONS



# SOAKEASE™ OIL ABSORBENT TUBES

## MATERIALS SPECIFICATION SHEET

**WARNING:** Not recommended for use with aggressive fluids including strong acids, strong bases, oxidizers, or hazardous materials.

### Vendor Identification

- ☐ Vendor: Brainard-Kilman Drill Co.  
2175 West Park Ct, P.O. Box 1959  
Stone Mountain, GA 30086  
(404)469-2720  
Date Prepared: January 29, 1992

### Ingredients/Identity Information

- ☐ Hazardous Components:  
(Specific Chemical Identity; Common Name(s)  
No Hazardous Components  
Polypropylene CAS# 9003-07-0  
Other limits:  
OSHA (PEL): N/A  
ACGIH(TLV): N/A  
Other Limits Recommended: N/A

### Physical/Chemical Characteristics

- ☐ Boiling Point: N/A
- ☐ Vapor Pressure (mm[Hg]): N/A
- ☐ Vapor Density (Air=1): N/A
- ☐ Solubility in water: Insoluble
- ☐ Appearance and Odor: Fibrous material contained in a white fabric sock; negligible odor.
- ☐ Specific Gravity( $H_2O = 1$ ): 0.90 at 60°F
- ☐ Melting Point: 320°F
- ☐ Evaporation Rate (Butyl Acetate =1): N/A

### Fire and Explosion Hazard Data

- ☐ Flash Point: Autoignition Temperature 825°F
- ☐ Flammable Limits: N/A  
LEL: N/A UEL: N/A
- ☐ Extinguishing Media: Dry chemical, foam, carbon dioxide ( $CO_2$ ), water spray, or water fog.
- ☐ Special Fire Fighting Procedures: Use water spray to cool fire-exposed surfaces and to protect personnel. For large fires or fires in contained areas, use NIOSH/MSHA approved self-contained breathing apparatus.
- ☐ Unusual Fire and Explosion Hazards: Some carbon monoxide formation is possible under oxygen-lean conditions.

### Reactivity Data

- ☐ Stability: Unstable \_\_\_\_\_ Stable X
- ☐ Conditions to avoid: N/A
- ☐ Incompatibility (Materials to Avoid): Slight degradation may occur if exposed to strong oxidizing agents.
- ☐ Hazardous Decomposition or Byproducts: N/A
- ☐ Hazardous Polymerization: Will not occur.

### Health Hazard Data

- ☐ Route of Entry: Inhalation? N/A Skin? N/A  
Ingestion? N/A
- ☐ Health Hazards (Acute and Chronic): N/A
- ☐ Carcinogenicity: NTP? N/A  
IARC Monographs? N/A  
OSHA Regulated? N/A
- ☐ Signs and Symptoms of Exposure: N/A
- ☐ Medical Conditions Generally Aggravated by Exposure: N/A
- ☐ Emergency and First Aid Procedures: N/A

### Precautions for Safe Handling and Use

- ☐ Steps to Be Taken in Case Material is Released or Spilled: Not a hazard. Normal clean up.

☐ Waste Disposal Method: If unused, any - not a hazard. If saturated, handle and dispose in manner proper to the contaminant absorbed and in accordance with Federal, State and Local regulations.

- ☐ Precautions to Be Taken in Handling and Storing: Store in area out of direct sunlight. Do not store near open flame, high heat or strong oxidants.
- ☐ Other Precautions: N/A (Refer to absorbed fluid(s) MSDS(s), because this product does not render fluids non-flammable, neutral or less hazardous.)

### Control Measures

- ☐ Respiratory Protection: None needed.
- ☐ Ventilation: Local Exhaust? N/A  
Mechanical (General: N/A
- ☐ Protective Gloves: N/A
- ☐ Eye Protection: N/A
- ☐ Other Protective Clothing or Equipment: Only as necessary for spilled contaminant.
- ☐ Work/Hygienic Practices: None special.

## BRAINARD-KILMAN

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Atlanta • Boston • Chicago • Denver • Houston • Los Angeles • Orlando • Raleigh • San Francisco • Seattle • Washington DC  
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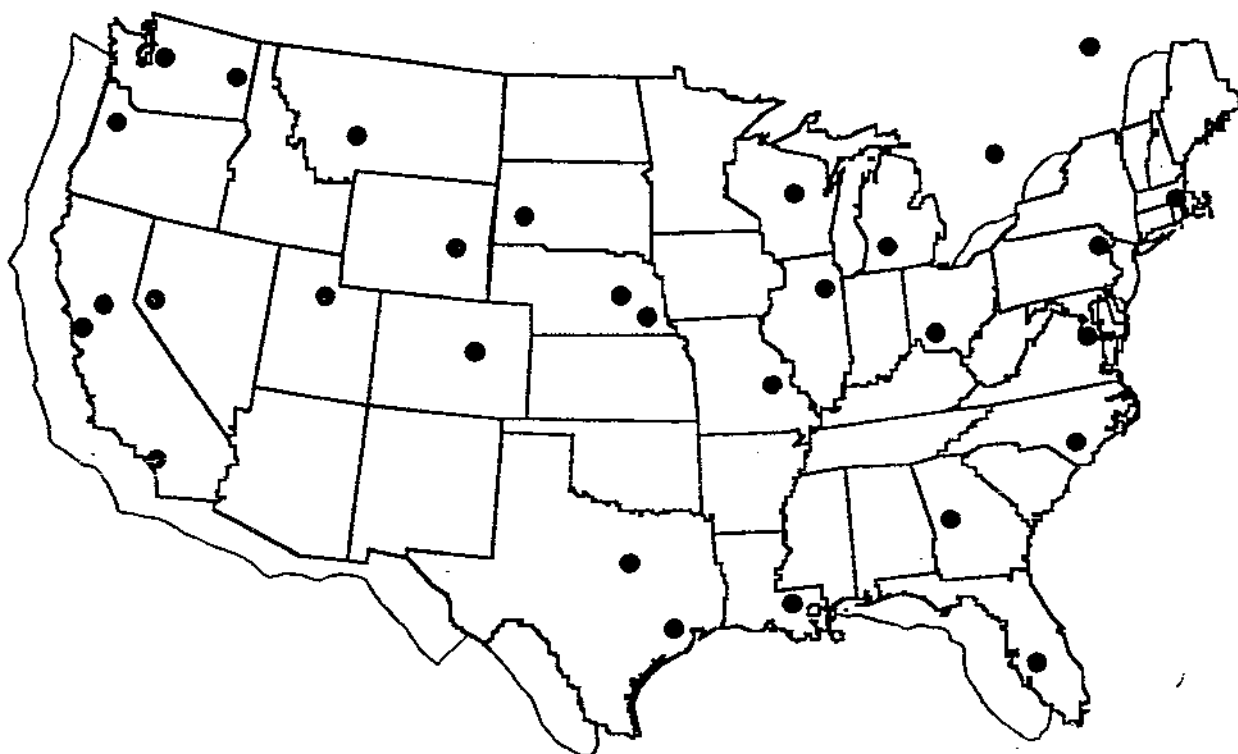
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BILL TO:			SHIP TO:		
Customer Number _____			UPS shipments must have street or highway address.		
TYPE OR PRINT	Name: _____		Name: _____		
	Company: _____		Company: _____		
	Address: _____		Address: _____		
	Date: _____ P.O. No. _____		_____		
	Daytime Phone: _____		_____		
FAX: _____ (so we may acknowledge your order)			_____		
Authorized Signature: _____			_____		
PRICES change from time to time. If the price of an item you order has increased by a reasonable amount, your order will be shipped and billed at the higher price. If the increase is substantial, we will call or write for your permission to ship at the higher price. If you want to be notified of any increase before your order is shipped, check here. <input type="checkbox"/>			SHIP VIA: _____ (preferred method of shipment-truck, UPS, Fed X, etc)		
			<input type="checkbox"/> collect <input type="checkbox"/> prepay & add <input type="checkbox"/> other _____		
PART NO.	QTY.	UNIT (ea., etc.)	DESCRIPTION	UNIT PRICE	TOTAL PRICE
PAYMENT METHOD				TOTAL	
<input type="checkbox"/> VISA <input type="checkbox"/> MASTERCARD <input type="checkbox"/> PAYMENT ENCLOSED				Applicable Sales Tax will be added to your order	
<input type="checkbox"/> Check <input type="checkbox"/> Money Order				Shipping Charges (\$5.00 min.)	
<input type="checkbox"/> C.O.D.				TOTAL AMOUNT	
<input type="checkbox"/> Existing BK Open Account Terms 1.5%-15/net 30 Account No. _____				AMOUNT ENCLOSED, if any	
<input type="checkbox"/> OPEN ACCOUNT-CHARGE Attach credit application					
COMMENTS/SPECIAL INSTRUCTIONS					



# BRAINARD • KILMAN

*Sales and Distribution Network*



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


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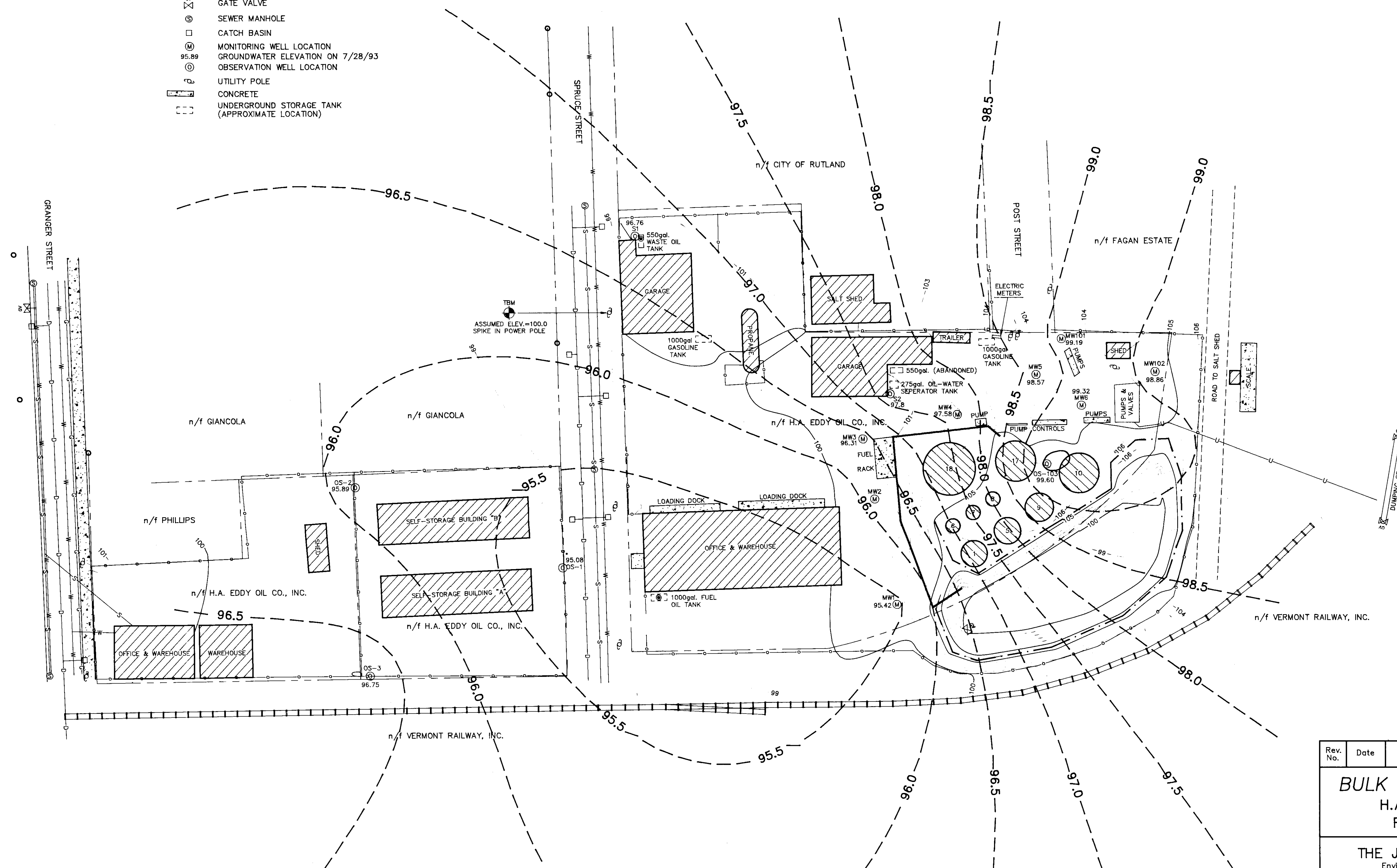
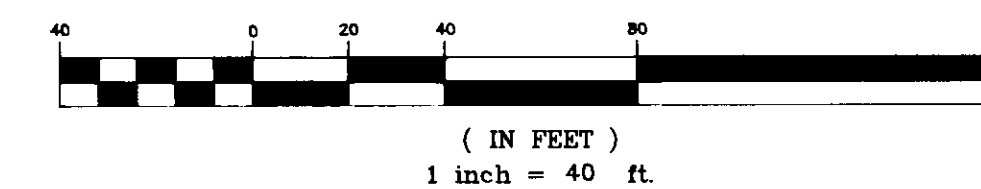
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- |   |  |
|---|--|
|  | UNDERGROUND GAS LINE                               |
|  | UNDERGROUND STORM DRAIN                            |
|  | UNDERGROUND WATER MAIN                             |
|  | UNDERGROUND SANITARY SEWER                         |
|  | 1' GROUND SURFACE CONTOUR                          |
|  | 0.5' GROUNDWATER CONTOUR - 7/28/93                 |
|  | FENCELINE  |
|  | RAILROAD TRACKS                                    |
|  | CONCRETE CONTAINMENT DIKE                          |
|  | TOP OF EMERGENCY LAGOON                            |
|  | PROPERTY LINE                                      |
|  | IRON PIN   |
|  | FILL PIPE  |
|  | GATE VALVE   |
|  | SEWER MANHOLE                                      |
|  | CATCH BASIN  |
|  | MONITORING WELL LOCATION                           |
|  | GROUNDWATER ELEVATION ON 7/28/93                   |
|  | OBSERVATION WELL LOCATION                          |
|  | UTILITY POLE                                       |
|  | CONCRETE   |
|  | UNDERGROUND STORAGE TANK<br>(APPROXIMATE LOCATION) |

SOURCES: SURVEY BY COURCELLE SURVEYING CO., RUTLAND, VERMONT - 6/17/93;  
"LANDS OF H.A. EDDY OIL CO., INC., SPRUCE STREET & GRANGER ST., RUTLAND  
VERMONT" BY COURCELLE SURVEYING CO., RUTLAND, VERMONT - 7/9/93  
GROUNDWATER CONTOURS BY THE JOHNSON CO., INC., MONTPELIER, VERMONT

GRAPHIC SCALE



Rev. No.	Date	Description	Made by	Chk'd by	App'p by
<p><i>BULK FACILITY SITE PLAN</i></p> <p>H.A. EDDY OIL CO. INC.</p> <p>RUTLAND, VERMONT</p>			<p>AUG 27 1993</p>		
			<p>Sheet 1 of 1</p>		
<p>THE JOHNSON COMPANY, INC.</p> <p>Environmental Sciences and Engineering</p> <p>5 STATE STREET</p> <p>MONTPELIER, VERMONT 05602</p>			<p>Scale: 1"=40'</p> <p>Drawn by: TJK</p> <p>Chk'd by: GBJ</p> <p>Date: 8/25/93</p> <p>Job 1-0839-</p>		



# **Remedial Investigation Report**

**HA Eddy Convenience Store,**

**86 Woodstock Avenue**

**Rutland, Vermont**

---

**August 1993**

*Prepared for:*

**HA EDDY OIL COMPANY**

*148 Spruce St.*

*Rutland, Vermont 05707*

*Prepared by:*

**THE JOHNSON COMPANY, INC.**

*5 State Street*

*Montpelier, Vermont 05602*

*(802) 229-4600*

## EXECUTIVE SUMMARY

An investigation was performed by The Johnson Company, Inc. (Montpelier, Vermont) for the H.A. Eddy Oil Company (Rutland, Vermont) at the H.A. Eddy Convenience Store, (Store) Rutland Vermont. The components of this investigation as described in detail in a work plan submitted to the Vermont Department of Environmental Conservation Hazardous Waste Management Division (DEC) (The Johnson Co., 1993a) included vapor headspace monitoring, monitoring well installation, and groundwater sampling. The files at the offices of the DEC were reviewed, and a preliminary inventory of hazardous waste sites listed with the DEC was made. Site work by The Johnson Company during this investigation was performed July 27, 1993. Field screening of samples during installation of monitoring wells indicated that the soils collected within the split spoon samplers never registered higher than 0.5 ppm on the photoionization detector (PID) utilized during the site work. The soil stratigraphy at this site is characterized by fill over silty sandy to gravelly till. A tight silt to clay size interstitial matrix within the till governs a slow recharge of water table into wells installed at this Site. This was noted especially near the southeast corner of the Site, where wells VP-101 and MW-105 were installed. Depth to groundwater was measured at the Site to range between 7.9 and 9.7 feet below ground under the Store vicinity, and to the south near Harrington Street, within 4.8 feet. The direction of groundwater flow under the Eddy Store generally proceeds from Woodstock Avenue south-southwest. Groundwater samples were collected on July 28, 1993, and for MW-105, on August 18, 1993. Results received from Scitest Laboratory (Randolph, Vermont) indicated the presence of dissolved phase total BTEX concentrations up to 27,300 micrograms per liter ( $\mu\text{g/L}$ ) localized within MW-101. MW-101 is located along Woodstock Avenue, approximately 20 feet south of the roadway. This well and two others, MW-103, and MW-106 indicate the locations of the highest concentrations of benzene of all the wells tested. Benzene levels were indicated in MW-102, however at a lesser concentration. MW-102 is situated directly downgradient from USTs #1, #2, and #3. Groundwater quality data from a Level II ESA performed in June 1993 by The Johnson Company indicated the presence of the chlorinated solvents 1,2-dichloroethane, and tetrachloroethylene in low concentrations (1 and 2  $\mu\text{g/L}$  respectively). The sample data for MW-102 from July 28, 1993 did not detect the presence of either of the two chlorinated solvents. However, a low concentration of 1,1-dichloroethane (4  $\mu\text{g/L}$ ) was detected in the monitoring well. Wells MW-104, and MW-105, located to the south and southeast of the Eddy Store respectively, both indicated none detects for any of the tested compounds. MW-105 was sampled at the later date (8/18/93) due to slow recharge within the monitoring well. A line tightness test was performed on all the distribution lines in use at the Site. This was performed outside the scope of this investigation by Northland Petroleum for Eddy Oil Company. Results of the tightness test indicated the distribution lines to be sound. Furthermore, tank inventory records performed by Eddy Store personnel on a daily basis do not indicate the presence of an inordinate volumetric loss of product. The highest concentrations of BTEX in wells proximal to Woodstock Avenue, combined with the results of the integrity testing in the distribution lines does not support an on Site source such as a leak within the distribution lines. Given the relatively low transmissivity of the underlying soils at this Site, it is postulated that contaminant migration may be enhanced along one or more of the utility lines that are associated with Woodstock Avenue. Further testing and investigation centering on the layout of these lines is recommended. Semi-annual groundwater sampling of the existing wells at the Eddy Store should be performed to test for the trends in BTEX and MTBE concentrations in groundwater, and in the case of MW-101, the presence of free product.

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## 1.0 INTRODUCTION

The HA Eddy Convenience Store is situated on an approximate 0.6 acre parcel of land located at 86 Woodstock Avenue (Route 4) in Rutland, Vermont (Figure 1).

The Eddy Store is bound on the north by Woodstock Avenue (Route 4); on the south by an undeveloped lot also owned by H.A. Eddy; on the east by a private residence; and on the west by Filipi Dry Cleaners. Petroleum products in the form of gasoline, diesel and kerosene, are sold from this store. The petroleum products are distributed from a total of five underground storage tanks (USTs) in the following configuration: three 10,000 gallon USTs holding unleaded extra, diesel, and regular unleaded; one 4,000 gallon kerosene UST; and one 5,000 gallon super unleaded UST. Two pump islands are located at the north of the Store building.

An investigation was performed by The Johnson Company, Inc. (Montpelier, Vermont) for the H.A. Eddy Oil Company (Rutland, Vermont) at the H.A. Eddy Convenience Store, (Store) Rutland Vermont.

The components of this investigation as described in detail in a work plan submitted to the DEC (The Johnson Co., 1993a) are as follows:

- Perform Regulatory Review for Background Information;
- Perform a Site Investigation consisting of:
  - Initial Field Screening with a PID;
  - Monitoring Well Installations;
  - Groundwater Sampling
- Laboratory Analyses

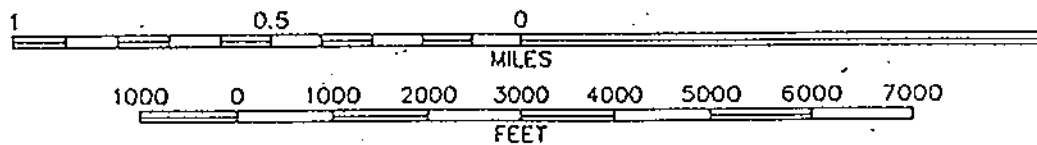
In addition to the tasks proposed in the work plan, and, exclusive of the workplan, H.A. Eddy retained Northland Petroleum, Barre, Vermont to perform a distribution line tightness test on the UST system.

## 2.0 BACKGROUND

This investigation originated as a result of findings uncovered during a Level II Environmental Site Assessment (ESA) performed on June 3, 1993 by The Johnson Co. Inc. During this ESA, three monitoring wells were installed (MW-101, MW-102, and MW-103) and a sample of groundwater was collected from each well. A fourth well (VP-101) was installed as a vapor monitoring point. This well



NORTH



CONTOUR INTERVAL 20 FEET



MAP LOCATION

BASE MAP : USGS 7.5 Minute Topographic Quadrangle; Rutland, VT 1983

FIGURE 1 : Site Location Map  
H.A. Eddy Convenience Store and Bulk Storage  
Rutland, Vermont

THE JOHNSON COMPANY  
Environmental Sciences and Engineering  
MONTPELIER, VERMONT

eventually recovered with water, and currently is used as an observation well only (no samples). As a result of laboratory testing performed on the water samples, levels of total benzene, toluene, ethylbenzene, xylenes (BTEX), and methyl tertiary butyl ether (MTBE) were indicated in groundwater under the Store at reportable concentrations pursuant to Vermont Ground Water Protection Rule and Strategy (GWPRS). The exceedances are in respect to the enforcement standards listed in Table 1 "Primary Ground Water Quality Standards" under §12-702 of the GWPRS (1988).

As a result of the findings, the H.A. Eddy Company (Eddy) retained The Johnson Co. to write a work plan for this investigation, and submit to the Vermont Department of Environmental Conservation (DEC) Hazardous Waste Management Division for review and approval. In a letter dated July 12, 1993, the DEC reviewed the work plan and authorized its implementation. Furthermore, the DEC stated that all funds expended by H.A. Eddy related to the Eddy Store investigation would be eligible towards the deductible amount of the Petroleum Cleanup Fund (PCF).

## 2.1 DEC FILE REVIEW

Because of the location of monitoring well MW-101 at the "upgradient" part of the Eddy Store site, it is possible that the source of the indicated BTEX contamination in this well, could potentially be from off site. In an effort to itemize potential sources off site from the Eddy Store, an inventory of listed sites in Rutland was made, using information available through the DEC files.

The Johnson Company obtained the latest edition of the Vermont Hazardous Sites List (DEC, 1993a). A review of this list indicates that there are a total of seven Sites positively identified within a one-mile radius of the Eddy Store. There are potentially three additional Sites that may fall within this radius, however their exact locations were not confirmed.

Two "Active Sites" as listed by the DEC were identified across the street (Woodstock Avenue) from the Eddy Store. These are: 1) Site no. 91-1011 "Foto Hut Property" located at 77 A Woodstock Avenue; and 2) Site no. 89-0377, "Bob's Texaco" located at 93 Woodstock Avenue. Both of the Site files associated with this listing were planned for review, however, only the Foto Hut file was reviewed due to the fact that the Bob's Texaco file can not be located at the DEC.

## 2.2 FOTO-HUT SITE

The Foto Hut file was reviewed by The Johnson Co. on August 4. The DEC has recently issued a Preliminary Assessment (PA) in regard to this Site (DEC, 1993b). A copy of Section 6 of the PA is reproduced below:

*Currently, the site is owned by the Chittenden Bank who lease the building to Foto-Hut, a photographic supply and film development shop. During a sale preparation underground piping and an UST were discovered contaminated with perc and T-E-X. The Chittenden Bank hired The Johnson Company in the fall of 1990 to investigate the extent of the piping and soil contamination. During the investigation, two other USTs were discovered. the three USTs, their contents and surrounding soils have been removed offsite and two monitoring wells were installed onsite. The analytical results of the water quality collected from the monitoring well installed in the UST excavation indicates the presence of groundwater contamination. The perc contaminated soils and piping still remain onsite in the rear of the building. The Foto-Hut Property is situated in an urban area of Rutland. There are approximately 18,500 people that rely on surface water for drinking with a 4-mile radius. The closest known well and residence is located approximately .25 miles from the site. There are no known drinking water intakes within 15 downstream miles of the site. there are occurrences of a rare plant and wetlands within 4 miles and 15 downstream miles of the site. The closest wetland is located .5 miles from the site.*

## 2.3 BOB'S TEXACO

Although the Site file for Bob's Texaco at 77 Woodstock Ave. was not available for review, information from the Underground Storage Tank Division's files indicated that in 1989 four USTs were pulled from Bob's Texaco, and of the four, one was a leaking underground storage tank (LUST) (DEC, 1989). Information on the form filled out during the 1989 tank pull indicated that from 120 - 150 yards of contaminated soils were excavated, and stockpiled on Bryan Hathaway's property on Prospect Hill Road in Rutland. According to the information on the form, four monitoring wells were proposed for installation.

## 3.0 INVESTIGATION METHODOLOGY

The site work pertaining to this investigation was performed July 27, 1993. The site work performed on this day included the following:

- vapor monitoring study
- depth to water measurements
- installation of three monitoring wells

### 3.1 VAPOR MONITORING

The vapor monitoring was done by recording total volatile organic compound (VOC) vapor concentrations with an HNu Model PI-101 photoionization detector (PID) inserted into the headspace area of all the monitoring wells located on the H.A. Eddy site. The vapor monitoring was performed in an effort to characterize relative headspace concentrations of VOC vapors from monitoring wells located on the Eddy Store site.

### 3.2 MONITORING WELL INSTALLATION AND CONSTRUCTION

Monitoring wells MW-104, MW-105, and MW-106 were installed July 27, 1993 by Tri State Drilling and Boring, Inc. (W.Burke, Vermont). The wells were installed using a hollow stem auger drill rig. These wells augment previously installed monitoring wells MW-101, MW-102, MW-103, and VP-101.

The locations of all existing monitoring wells installed on the Eddy Store site are shown in the site plan (Plate 1). The locations were set in the areas recommended in the June 30, 1993 work plan (Johnson Co., 1993a) with the exception of MW-106. MW-106 was originally intended to be located across Woodstock Avenue, and hydraulically upgradient from MW-101. Access to install a monitoring well on the Chittenden Bank property was not allowed by the Chittenden Bank. Access to the Woodstock Avenue right of way (ROW) was allowed by Chittenden, however, due to information obtained from the DEC files (described above) it was decided that the most likely off site source for the MW-101 BTEX contamination could be from the LUST removed in 1989 at the Bob's Texaco site. Therefore, MW-106 was oriented to provide a sample location more toward testing a potential plume of gasoline emanating from the area of the LUST removal on Bob's Texaco in 1989.

The monitoring wells are constructed of schedule 40 PVC riser pipe and factory slotted screen. The screened section of each monitoring wells was sand packed to a height at least 1 foot above the top of the screen. Granular Bennseal™ bentonite was poured to a thickness of at least 1 foot above the sand pack, to act as a well seal. Construction details of each monitoring well are presented on drilling logs included with this document in Appendix A.

The drilling equipment employed for the installation of each monitoring well was steam cleaned between successive location set-ups. Upon installation, each water bearing well was developed by air surge pumping until the discharge water was observed to be clear.



### 3.3 SOIL SAMPLE COLLECTION

Soil samples were collected for stratigraphic descriptions and field screening at the time of monitoring well installation. The samples were collected using a 24 inch split spoon sampler driven ahead of the lead auger by a 140 pound hammer and 30 inch drop.

The soil samples were collected on 5 foot intervals in MW-104, and MW-105. At MW-106, samples were collected continuously. At the time of collection, samples were described for stratigraphy, and field screened for presence of VOCs using the HNu. After description and field screening, samples were stored in plastic "Zip Lock" bags, labeled with the depth increment, date and monitoring well and temporarily set aside for later soil headspace readings.

### 3.4 SITE SURVEY

The monitoring wells installed on July 27, were surveyed for locations and elevations by Courcelle Surveying Company, Rutland, Vermont (Courcelle). The horizontal coordinate system and benchmark elevation (referenced to an approximate U.S. Geological Survey datum) were generated during a Site survey by Courcelle on July 6, 1993. The location and elevation data of the three wells installed July 27 were tied into the existing coordinate system during a survey on July 28, 1993.

### 3.5 GROUNDWATER LEVEL MEASUREMENTS AND ELEVATION DATA

Depth to groundwater measurements were collected during the vapor monitoring study, and in the case of the newly installed wells, immediately after their installation. Water levels were recorded by a Solinst water marker, and were referenced to elevations of the top of well casing of the monitoring well. The water marker was decontaminated between well readings using distilled water.

### 3.6 GROUNDWATER ELEVATIONS

Elevations for the top of the water table were calculated by subtracting the depth to water measurement from the benchmark elevation (at the top of the casing). The calculations were done within the database (Paradox™ 3.5) that the depth to water and survey data were maintained.

### 3.7 ELEVATION CONTOUR MAPS

Contour maps depicting the surface of the water table were generated using the computer program Surfer™ (Golden Software, Golden, Co.). This program contours the water table elevations from data sets that consist of the horizontal survey coordinates, and the respective water table elevation associated with each set of coordinates. In order to account for the vertical hydraulic gradient that is prevalent to this site, (Section 4.5), the water level data has been normalized. The normalized correction factor for each well was calculated by subtracting the center of each screen interval elevation from a baseline datum and multiplying the value by the observed vertical gradient.

### 3.8 GROUNDWATER SAMPLE COLLECTION

Groundwater samples were collected July 28, 1993 by The Johnson Co. The samples were collected using our Standard Operating Procedure for collection of groundwater samples (SOP-JCO-008). PVC disposable bailers were utilized for collecting water from each well. Field parameter measurements were collected at the time of sampling using a YSI 3560 Water Quality Monitor. The parameters measured include temperature, specific conductance, and pH. Additionally, general observations such as color, odor and appearance were noted. A total of 5 groundwater samples and one field blank were collected from the Site.

The samples were collected in conjunction with the sample event at the H.A. Eddy Bulk Storage Facility at 148 Spruce St. The sample group was delivered to Scitest by the sampler.

## 4.0 RESULTS

### 4.1 HEADSPACE VAPOR MONITORING

The results of the vapor monitoring survey are presented in Table 4-1. All readings were taken with the HNu PI-101 PID, calibrated the day of the site work to 56 ppm isobutylene span gas.

The results indicate that MW-101 contains the highest vapor headspace concentrations by over an order of magnitude. The next highest reading (13 ppm) was collected from the headspace of MW-103, located approximately 63 feet west-southwest of MW-101.

Table 4-1  
H.A. Eddy Convenience Store  
Summary of Vapor Monitoring in Well Headspace  
July 27, 1993

Well Identification	PID Reading
MW-101	110 ppm
MW-102	3 ppm
MW-103	13 ppm
MW-104	0 ppm
MW-105	N.A. <sup>1</sup>
MW-106	1.4 ppm
VP-101	4 ppm
<sup>1</sup> The well headspace was not measured at this location due to its proximity to VP-101	

#### 4.2 SUMMARY OF SOIL STRATIGRAPHY

Descriptions of the soils that exist below the Site were made based upon observations of split spoon samples. The split spoon samples were collected during the installation of monitoring wells at the Eddy Store, during both the June 3 ESA, and the July 27 investigation. The soil stratigraphy is best summarized as consisting of a mixture of fill over fine silty to sandy gravelly till. The fill is predominately within the upper five feet of the north area of the Site. Based upon the topography observed at the Eddy Store property, it is suspected that fill may exist to approximately 6 - 8 feet near the southern paved portion of the Site. Samples collected from location VP-101 indicate a complex of sandy to almost gravelly sections of till below approximately 10 feet. A tight interstitial matrix consisting of silt to clay size particles was observed throughout the till, especially in samples collected near the southeast of the Eddy Store building. This tight interstitial matrix is suspected to be the cause of the low recharge noted in the two wells set at this location (VP-101, MW-105).

What is remarkable in soils observed from this Site is that when screened directly within the sampler using the PID, no markedly high readings (e.g. greater than 10 - 20 ppm) were recorded by the PID. Soil headspace readings from samples collected during the Level II ESA in June 1993 from the locations at MW-101, MW-102, and MW-103 were the only samples that registered headspace readings above 10 ppm. The highest soil headspace value recorded by the PID was 44 part per million (ppm) from 4-6 feet in MW-101.

The readings recorded from wells MW-104, and MW-106 installed July 27, 1993 did not indicate soil vapor concentrations greater than 1.8 ppm.

Table 4-2 lists a summary of soil headspace sampling that has been performed on soils sampled during both this, and the previous site work on June 3, 1993.

<p align="center"><b>Table 4-2</b>  <b>Summary of Soil-Bag Headspace Readings</b>  <b>H.A. Eddy Convenience Store</b>  <b>Rutland, Vermont</b></p>			
<b>Well ID</b>	<b>Interval (ft)</b>	<b>PID Reading<sup>2</sup></b>	<b>Headspace Time<sup>3</sup></b>
MW-101 <sup>1</sup>	4 - 6	8.0	5 Hrs
	9 - 11	44.0	5 Hrs
	14 - 14.8	4.5	5 Hrs
MW-102 <sup>1</sup>	4 - 6	20.0	2 Hrs
	9 - 11	3.6	2 Hrs
	14 - 16	5.0	2 Hrs
MW-103 <sup>1</sup>	4 - 6	3.0	1 Hr
	9 - 11	12.0	1 Hr
	14 - 16	3.0	1 Hr
VP-101 <sup>1</sup>	4 - 6	1.0	4 Hrs
	9 - 11	0.8	4 Hrs
	14 - 16	1.8	4 Hrs
	19 - 21	1.2	4 Hrs
	24 - 29	2.2	4 Hrs
MW-104 <sup>4</sup>	4 - 6	1.8	1.5 Hrs
	9 - 11	0.8	1.5 Hrs
MW-105	N.A. (Not Sampled)		
MW-106	1 - 3	0.2	2.5 Hrs
	3 - 5	0.3	2.5 Hrs
	5 - 7	0.4	2.5 Hrs
	7 - 9	0.4	2.5 Hrs
	9 - 11	0.3	0.25 Hrs
	11 - 13	0.8	0.25 Hrs
	13 - 15	1.0	0.25 Hrs
<sup>1</sup>	Measured 6/3/93		
<sup>2</sup>	Recorded using HNu <sup>®</sup> P-101 PID as ppm above background, which was measured at 0.2 ppm		
<sup>3</sup>	This is the approximate time that the soil sample was in the sample bag		
<sup>4</sup>	Measured 7/27/93		

### 4.3 GROUNDWATER SAMPLING RESULTS

#### 4.3.1 Field Parameter Measurements

The field parameters measured during sampling include the following: temperature; specific conductance; and pH. The measurements are summarized in Table 4-3.

Table 4-3 Summary of Field Parameter Measured in Groundwater at H.A. Eddy Store July 28, 1993				
Well ID <sup>1</sup>	Depth to Water (ft)	Temperature (C)	Sp. Cond (μmhos/cm)	pH
MW-101	8.30	17.2	2,360	6.74
MW-102	9.33	17.8	3,340	6.84
MW-103	8.15	16.2	1,872	6.52
MW-104	5.18	14.9	1,153	6.95
MW-105	DRY	--- <sup>2</sup>	---	---
MW-106	7.89	16.2	1,296	7.14
<sup>1</sup> The wells correlated to those labeled with the prefix "CS" on the Scitest Analytical Report				
<sup>2</sup> --- Not Measured				

The largest range of values from a single parameter was that of specific conductance. The highest reading for specific conductance in the groundwater was indicated at location MW-102. This happens to be the location nearest a sewer main that exists on the Store property (Plate 1) and the elevated reading could very well be an indication of exfiltration from the sewer main.

### 4.4 ANALYTICAL RESULTS

Groundwater analytical data for the July 28, 1993 samples was received from Scitest on August 19, 1993. Scitest's report is presented in Appendix B of this document. The water quality data has been summarized into Table 4-4. The table lists the detected compounds indicated from sampling performed on June 3, 1993; and subsequent sampling on July 28, 1993. Table 4-5 lists the detected compounds in monitoring wells sampled July 28, 1993.

Table 4-4  
Summary of Volatile Organic Compounds  
Detected in Groundwater  
H.A. Eddy Convenience Store  
Samples Collected 3 June 1993, and July 28, 1993  
(All results in  $\mu\text{g/L}$ )

Parameter	MW-101		MW-102		MW-103		MW-104	MW-105 <sup>2</sup>	MW-106	Trip Blank		Enforcement Standard <sup>3</sup>
	6/3/93	7/28/93	6/3/93	7/28/93	6/3/93	7/28/93	7/28/93	8/18/93	7/28/93	6/3/93	7/28/93	
1,1 Dichloroethene	< 100	BPQL <sup>4</sup>	BPQL	4	BPQL	BPQL	BPQL	ND <sup>5</sup>	BPQL	BPQL	BPQL	7/.07
1,2-Dichloroethane	<100	BPQL	1	BPQL	BPQL	BPQL	BPQL	ND	BPQL	BPQL	BPQL	5/0.5
Tetrachloroethylene	<100	BPQL	2	BPQL	BPQL	BPQL	BPQL	ND	BPQL	BPQL	BPQL	0.7/0.07
MTBE	2430	3100	1,400	2700 <sup>6</sup>	395	310	BPQL	ND	240	BPQL	BPQL	200 <sup>7</sup>
Benzene	2850	9200	5	27	273	530	BPQL	ND	160	BPQL	BPQL	5/0.5
Toluene	2900	9600	3	2	198	35	BPQL	ND	3	BPQL	BPQL	2420/1210
Ethylbenzene	420	1400	2	BPQL	94	44	BPQL	ND	BPQL	BPQL	BPQL	680/340
Xylenes	2280	7100	BPQL	BPQL	332	110	BPQL	ND	BPQL	BPQL	BPQL	400/200

1 Data from Scitest Laboratories, Inc. for samples MW-101, 102, 103, 104, and 106

2 MW-105 was sampled on 8/18/93. The sample was shipped to Analytics Environmental Laboratory, Portsmouth, New Hampshire for analysis.

3 Except where noted Standard Shown is based upon "Vermont Groundwater Protection Rule and Strategy (1988). The Preventative Action Limit is listed after the Enforcement Standard

4 BPQL = Below the Practical Quantitation Limit of 1 part per billion for the listed parameters.

5 ND = None Detected

6 DWEL -- "Drinking Water Equivalent Level", SDWA. As published in: Drinking Water Regulations and Health Advisories", 1991.

7 MTBE was above working range of curve on this sample - the value indicated was out of range with standard. Several unidentified peaks were found with analyses in this well

The location MW-105 was sampled subsequently to the rest of the locations due to the fact that it is set in slowly recovering soils, and as such was not able to be sampled on July 28. By July 30, the well had recovered with a sufficient volume of water to enable a depth to groundwater measurement. The monitoring well was subsequently sampled on August 18, 1993, and shipped via Federal Express to Analytics Environmental Laboratory (Portsmouth, New Hampshire). Results were received from Analytics on August 24, 1993. None of the parameters tested for using EPA Methods 8010/8020 were indicated in groundwater at this location.

Of the results, groundwater tested at location MW-101 indicates the highest concentrations for the compounds benzene, toluene, ethylbenzene, and xylenes (BTEX), and methyl tertiary butyl ether (MTBE). The BTEX and MTBE concentrations confirm the earlier (June 3) analytical data, and also correspond with the vapor monitoring survey, i.e., of the wells that were tested, the headspace in MW-101 registered the highest reading with an HNu PID. From Scitest's analyses a significant increase in concentrations is indicated in the wells that were initially sampled on June 3. This could indicate a migrating contaminant plume, but, since the wells sampled on June 3 were done so on the same day after they were installed, it should not be ruled out that the increased levels in the Store site wells may be attributed to a more representative conditions sampled.

#### 4.5 GROUNDWATER FLOW DIRECTION AND HYDRAULIC GRADIENT

The surface of the water table is depicted by the elevation contour lines shown in Plate 1, "Site Plan, H.A. Eddy Convenience Store". The contours represent the points of equal elevation along the water table surface, or equipotential lines. The direction of flow of groundwater under the Site is normal to the equipotential lines, and for this Site, is depicted by the arrow on Plate 1.

The hydraulic gradient, or slope of the water table is the change in elevation of the water table in respect to the horizontal distance. The hydraulic gradient as calculated from the July 30 data is 0.046 feet/feet, or 4.6 percent along a flow line from location VP-101 to MW-104. Along a flow line originating at MW-101, and proceeding southward to MW-102, the hydraulic gradient is 0.020. This flow line represents the approximate path of migration for groundwater as it flows from MW-101 to MW-102. The horizontal gradient is characterized by a slope change near the location of MW-102. The slope change is presumed to be the existence of the less-transmissive soils. The topography is indicated on the Site Plan by the solid contours (Plate 1).

A description of the vertical hydraulic gradient as characterized in the wells MW-105, and VP-101 is also possible from the data collected July 30. The vertical gradient is characterized by the change in head divided by the average distance between screened intervals of the two adjacent wells. The screened section in VP-101 is backfilled with native material, whereas in MW-105, the screen is protected by a filter sand pack (Appendix A). As such, the difference in well construction may have a bearing on the vertical gradient measured by these two wells. The vertical gradient was measured to be 0.11 feet/foot, or 11 percent based on the July 30 data. The significance of this is as follows: the elevation of the water table is higher in the well (MW-105) screened at a higher interval in the aquifer. This implies that there is a positive downward trend in the groundwater flow regime (in addition to the southwest direction of flow). A downward trend implies that underlying bedrock aquifer(s) may be at risk from contaminated surficial aquifer waters.

## 5.0 SUMMARY AND CONCLUSIONS

### 5.1 ASSESSMENT OF GROUNDWATER CONTAMINATION

Dissolved phase BTEX and MTBE contamination has been indicated in groundwater underlying the Eddy Store. The contamination has been indicated from samples collected in the following monitoring wells: MW-101; MW-102; MW-103; and MW-106. Scitest's 8010/8020 analyses from MW-104, located approximately 165 feet south of the Store (Plate 1) did not indicate the presence of any tested parameter in groundwater at this location. Analytic's report of analyses from groundwater at MW-105 indicated the same, no detectable concentrations. The contaminated area of the Site is best characterized as encompassing the frontage area along Woodstock Avenue, and extending south-southwest on the Site to MW-102.

A plume map cannot, at this time, be constructed that delineates the lateral extent of the contamination. This is due to the fact that monitoring wells situated along the Woodstock Avenue frontage all contain detectable concentrations of benzene in groundwater.

The area that exhibits the highest levels of contamination is localized in MW-101. From the earlier sample data collected (Table 4-4) during the June 1993 ESA, it was found that MW-101 contained over eight thousand parts per billion (ppb) total BTEX. The subsequent sampling has confirmed the contamination, indeed the level as reported by Scitest has increased to over 27,000 ppb in this monitoring well. Groundwater quality data indicates BTEX levels drop off to below detection levels in groundwater at both locations MW-104, and MW-105. At MW-106, although still detected, the level of total BTEX was two orders of magnitude less than MW-101 (based on July 28 sample data). At a distance sixty three feet



to the west of MW-101 (Plate 1), MW-103 indicates BTEX contamination, but is also considerably less when compared to MW-101.

Of the groundwater locations with detectable concentrations, benzene in groundwater is lowest at MW-102. Analytical data on groundwater at MW-102 had previously indicated the presence chlorinated solvents in low concentrations. The compound 1,2-dichloroethane was detected at 1 ppb, and tetrachloroethylene (PCE) was detected at 2 ppb. The July 28 sample data did not indicate the presence of either of these compounds, however, 1-1 dichloroethene was detected at 4 ppb. None of these compounds has been indicated in any of the other locations tested at this Site.

From the data received to date, it is apparent that the level of BTEX contamination in groundwater at the Store site decreases away from Woodstock Avenue.

## **5.2 ASSESSMENT OF EDDY STORE FUEL DISTRIBUTION AND UST SYSTEM**

Given the proximity of MW-101 to a fuel pump delivery island (Plate 1), it was recommended by The Johnson Company that a line tightness test on the fuel distribution lines be performed at the Eddy Store. Northland Petroleum, Barre, Vermont performed the test using the Tel-A-Leak™ Hydrostatic Line Test System on August 11, 1993. Results of the line testing, as indicated in Northland's completed forms indicate the distribution lines are of sound integrity. The lines from all five of the USTs existing at the Store were tested. Copies of the completed forms are included in this report as Appendix C.

The Store maintains an automated tank monitoring and inventory control system (Veeder-Root, Simsbury, Ct.). The Model TLS-250 monitors in-tank leaks and provides inventory control by tracking depth and volume within the USTs. Readings for all but the kerosene UST are recorded from the central panel every day at the beginning and end of each business day. The kerosene UST is checked twice daily with a stick. Additionally, all of the other USTs on site have been checked daily with a stick, as back up to the Veeder-Root system. Records are thus maintained and tabulated to summarize net change in product storage at H.A. Eddy's main office on Spruce Street. According to the Store Manager, Karen Maxham, for as long as she has been at the Store (one year), results of the product inventory records at the Store have not indicated any variance of consequence, that could be attributed to a loss of product from any of the USTs (The Johnson Company, 1993b).

The USTs are checked for presence of water on a less frequent interval. According to the Store manager, Karen Maxham, about four months ago, approximately two to three inches of water had been pumped from the unleaded plus tank. The presence of water in the 10,000 gallon unleaded plus UST is a concern if the water is not accountable to either condensation or as a result of a delivery. According to Eddy personnel, this was the only time such a volume of water was ever recorded within this tank. It was furthermore described that the water "appeared", as if it were part of a delivery (The Johnson Co., 1993c).

Given the integrity of the fuel distribution lines indicated by the August 11, 1993 line test it appears unlikely that the contamination indicated in groundwater under this Site has originated from the distribution lines. The existence of the highest concentrations of MTBE and BTEX contamination in groundwater occurs in locations that are hydraulically upgradient from the five USTs and distribution lines. The direction of groundwater flow proceeds from the north of the Store towards the south. In the event that the groundwater contamination originated from one of the components of the fuel distribution and storage system, the petroleum product would have had to migrate in an upgradient direction in terms of groundwater flow to be indicated at MW-101.

Although the hydraulic gradient is relatively flat in the vicinity of the wells at MW-101, 102, 103, and 106 (which would enable some upgradient product flow), it does not seem likely that a significant product release has occurred from the distribution lines in order to account for the concentrations indicated at MW-101. A leak of this magnitude would definitely be indicated through loss of product or, in the event the leak was in the distribution lines, in the line testing performed.

### 5.3 CONCLUSIONS and RECOMMENDATIONS

A release of petroleum compounds has occurred to the extent that compounds have been detected in four of six monitoring well locations sampled at the Eddy Store. The range of concentrations of BTEX and MTBE contamination indicate that the contamination is relatively localized within the area that encompasses the locations MW-101, MW-102, MW-103, and MW-106 (Plate 1).

From an ESA performed on June 3, 1993, it was postulated that two possibilities were most likely - either the contamination had originated from a leak or loose fitting in the line distribution system of the Eddy Store or the contamination has migrated onto the Eddy Store property from an off-site source.

It is the conclusion of this investigation that the source of the petroleum contamination is off site. The highest concentration of total BTEX in groundwater is indicated at location MW-101. This monitoring well is located the furthest from any of the five USTs situated on the Site (Plate 1). If the

source of the product release was indeed the 10,000 gallon unleaded plus UST, it seems that concentrations of total BTEX and MTBE would be higher in MW-102, located 20 feet from this tank, than in MW-101 (100 feet away). If the source were from a leak in the distribution lines, the line testing would have indicated product loss.

Possible routes of entry of the contamination onto the Eddy Store property may be provided along one or more of the buried utility lines that exist alongside Woodstock Avenue. The nature of the water table aquifer sampled under the Store indicates the aquifer to be of relatively low transmissivity. Utility lines offer avenues of higher transmissivity, i.e. preferential pathways, especially if the utility lines have been underlain and/or backfilled using crushed stone. Contaminant migration along utility lines of this type of construction could be feasible, and as such, the source could be some distance away.

Based upon information obtained from the Site Survey performed by Courcelle, there are the following utility lines existing along Woodstock Avenue: 1) ten inch diameter municipal sewer line, depth approximated by City of Rutland personnel to be 13 feet; 2) 18 inch diameter storm sewer line approximately seven feet deep; 3) six inch diameter municipal water line located across Woodstock Avenue, approx. five feet deep; and 4) Rutland Gas line. In regard to the water utility line, the Eddy Store's water is supplied from this line by a spur that runs from the utility line located on the north side of Woodstock Avenue across the road to the Eddy Store. MW-101, the well with the highest indicated concentrations of BTEX and MTBE, is approximately 25 feet west of the service connection. The significance here is that the water spur may provide a preferential pathway for contaminants to migrate from across Woodstock Avenue. The measured depth to water in MW-101 as of July 30 is approximately 8.4 feet below ground surface. The exact specifications of construction and layout of the utility lines should be investigated to confirm their overall layout. Furthermore, a field screening survey for the presence of VOC vapors should be performed in order to ascertain if elevated VOC vapors emanate along the water utility line. The measurements could be performed by accessing the utility lines from manholes that access service connections. A similar program should be performed along the three other utility lines that exist along Woodstock Avenue.

Monitoring wells MW-101, MW-102, and MW-103 and MW-106 should be sampled for presence of MTBE and BTEX in order to confirm the trend that is indicated in groundwater tested so far in these wells. A semi-annual monitoring schedule is recommended. Furthermore, a program to investigate the source(s) of the Eddy Store contamination should be implemented, beginning with the previously described research into utility line as-built specifications. It is recommended that this investigation be spear-headed by the DEC.

## 6.0 REFERENCES

The Johnson Company, 1993a, a "Preliminary Work Plan, H.A. Eddy Oil Company, Rutland Vermont", June 30, 1993 work plan submitted to the Vermont Department of Environmental Conservation.

The Johnson Company, 1993b, Personal Communication with Karen Maxham, Store Manager on 8/23/93.

The Johnson Company, 1993c, August 24, 1993. Telephone conversation with Alan Shelby, Assistant City Engineer, City of Rutland.

Vermont Department of Environmental Conservation, 1993a, Listing of Hazardous Waste Sites dated 7/26/93 in State of Vermont.

Vermont Department of Environmental Conservation, 1993b, "Potential Hazardous Waste Site Preliminary Assessment, Foto-Hut Property, Woodstock Avenue (Route 4), Rutland, Vermont"

Vermont Department of Environmental Conservation, 1989, tank Pull Form completed 7/17/89 by Patrick Coyne, Inspector.

Reviewed by: gbj  
I:\PROJECTS\1-0839-2\STORE2.RPT August 13, 1993 13:50 jrb

**Appendix A**  
**Monitoring Well Logs**

The Johnson Company, Inc.  
Environmental Sciences and Engineering  
5 State Street  
Montpelier, Vermont 05602

DRILLING LOG  
WELL # MW-101

Project: Dead River Company  
Location: HA Eddy Conv. Store  
Job # 1-0428-1  
Logged By: JRB  
Date Drilled: 6/03/93  
Driller: Tri State Drilling  
Drill Method: HSA 4.25 Inch ID

Casing Type: PVC  
Casing Diameter: 2.0 in.  
Casing Length: 4.5 ft.  
Screen Type: Factory  
Screen Diameter: 2.0 in.  
Screen Length: 10.0 ft.  
Slot Size: .010

Total Pipe: 14.5 ft.  
Stick Up: 0.0 ft.  
Total Hole Depth: 15.2 ft.  
Well Guard Length: 0.0 ft.  
Initial Water Level: 7.9 ft.  
Surface Elevation: 688.85 ft.  
T.O.C. Elevation: 688.70 ft.

■ = Sampled Interval

Sheet 1 of 1

Depth (feet)	Well Construction	Notes	Geology	PID Reading	Description
5					
4					
3					
2					
1					
0					
0	Cement				Advanced augers to 4 Ft; 50 ppm PID readings in auger headspace
1	Backfill				
2				50	
3	Bentonite				
4					
5				25	4 - 6 Ft: Blow Counts: 3-8-10-9; 1.0 ft. recov. out of 2 ft spoon; dark brown sandy silt at top of spoon, bottom is moist greenish tan pebbly sand; 0 ppm in sampler
6					
7				50	Drilled augers to 9 feet; 50 ppm PID in auger headspace
8					
9					
10	Sand Pack			3	9 - 11 Ft: 11-12-8-7; 0.75 ft. recov.; fine light brown gravelly sand; wet
11					
12	Screen			50	Drilled augers to 14 ft; 50 ppm in auger headspace
13					
14				0.5	14 - 14.75 Ft.: Difficulty in driving sampler; hole crooked--0.3 ft. recov.; Wet brown sand; rock chip in sampler tip;
15					
16					
17					

The Johnson Company, Inc.  
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5 State Street  
Montpelier, Vermont 05602

DRILLING LOG  
WELL # MW-102

Project: Dead River Company  
Location: HA Eddy Conv. Store  
Job # 1-0428-1  
Logged By: JRB  
Date Drilled: 6/03/93  
Driller: Tri State Drilling  
Drill Method: HSA 4.25 Inch ID

Casing Type: PVC  
Casing Diameter: 2.0 in.  
Casing Length: 11.0 ft.  
Screen Type: Factory  
Screen Diameter: 2.0 in.  
Screen Length: 10.0 ft.  
Slot Size: 0.010

Total Pipe: 21.0 ft.  
Stick Up: 0.0 ft.  
Total Hole Depth: 21.0 ft.  
Well Guard Length: 0.0 ft.  
Initial Water Level: 19.0 ft.  
Surface Elevation: 688.22'  
T.O.C. Elevation: 687.91'

■ = Sampled Interval

Sheet 1 of 1

Depth (feet)	Well Construction	Notes	Geology	PID Reading	Description
5					
4					
3					
2					
1					
0					
1	Cement			0	0 - 4 Ft: Cuttings from auger advance to 4 feet; 0 PPM in auger headspace
2	Bentonite			0	
3				0	4 - 6 Ft: Blow Counts: 12-9-7-7; 0.6 feet Recovery (2 ft. sampler); black carbon-like soil, mottled fine sandy gravelly fill
4	Backfill			0	
5				0	
6				0	6 - 9 Ft: Auger advance to 9 feet
7	Bentonite				
8				0.3	9 - 11 Ft: 11-8-6-9; 1.5 ft. recovery; light gray/brown mottled fine silty gravelly sand
9				0.2	
10	Screen			0.8	11 - 14 Ft: Auger advance to 14 feet; PID reading in auger headspace
11	Sand Pack			No Reading	14 - 16 Ft: 12-13-23-28; 1.5 feet recovery; Very moist light brown fine-medium sand and gravel
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					
33					
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35					
36					
37					
38					
39					
40					

The Johnson Company, Inc.  
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Montpelier, Vermont 05602

DRILLING LOG  
WELL # MW-103

Project: Dead River Company  
Location: HA Eddy Conv. Store  
Job # 1-0428-1  
Logged By: JRB  
Date Drilled: 6/03/93  
Driller: Tri State Drilling  
Drill Method: HSA 4.25 Inch ID

Casing Type: PVC  
Casing Diameter: 2.0 in.  
Casing Length: 9.0 ft.  
Screen Type: Factory  
Screen Diameter: 2.0 in.  
Screen Length: 10.0 ft.  
Slot Size: 0.010

Total Pipe: 19.0 ft.  
Stick Up: 0.0 ft.  
Total Hole Depth: 19.0 ft.  
Well Guard Length: 0.0 ft.  
Initial Water Level: 14.0 ft.  
Surface Elevation: 688.45'  
T.O.C. Elevation: 688.31'

■ = Sampled Interval

Sheet 1 of 1

Depth (feet)	Well Construction	Notes	Geology	PID Reading	Description
0					
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					
33					
34					
35					
36					
37					
38					
39					
40					



The Johnson Company, Inc.  
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DRILLING LOG  
WELL # VP-101

Project: Dead River Company  
Location: HA Eddy Conv. Store  
Job # 1-0428-1  
Logged By: JRB  
Date Drilled: 6/03/93  
Driller: Tri State  
Drill Method: HSA 4.25 Inch ID

Casing Type: PVC  
Casing Diameter: 2.0 in.  
Casing Length: 17.0 ft.  
Screen Type: Factory  
Screen Diameter: 2.0 in.  
Screen Length: 10.0 ft.  
Slot Size: 0.010

Total Pipe: 27.0 ft.  
Stick Up: 0.0 ft.  
Total Hole Depth: 27.0 ft.  
Well Guard Length: 0.0 ft.  
Initial Water Level: N/A  
Surface Elevation: 688.19'  
T.O.C. Elevation: 687.91'

■ = Sampled Interval

Sheet 1 of 1

Depth (feet)	Well Construction	Notes	Geology	PID Reading	Description
5					
4					
3					
2					0 - 4 Ft: Auger advance to 4 feet; PID reading from auger headspace
1					
0					
1		Cement			
2		Backfill		0	4 - 6 Ft: Blow counts: 3-3-6-14; Recovery 1.5 ft out of 2.0 ft; light brown fine sandy fill; loamy near top of interval, increased rock frags at bottom
3		Bentonite		0	
4					
5					
6				0.2	6 - 9 Ft: Auger advance to 9 feet
7					
8					
9				0.3	9 - 11 Ft: 5-4-13-12; 1.6 ft recov.; silt-rich at 9.5 feet (moist); compactd. silty-gravelly fine sand
10				0	
11					
12					
13				0	11 - 14 Ft: augers advanced to 14 feet
14					
15		Bentonite		0	
16					
17				0	14 - 16 Ft: 16-24-45-37; 1.8 ft recov.; Brown compacted sandy-gravelly till w/ fine silty sand matrix
18				0	
19					
20					
21					
22		Screen		n.r.	16 - 19 Ft: Drove augers to 19 feet
23					
24				0	19 - 21 Ft: 25-32-45-45; 1.8 feet recovery; compacted "bony" till; quartz fragment at 20 feet
25				n.r.	
26					
27					
28					21 - 24 Ft: auger advance to 24 feet; PID reading not taken
29					
30					
31					
32					24 - 26 Ft: 28-35-51-100; 1.8 feet recovery; Same as Above--but very moist at top of interval, slightly moist at bottom; quartzite rock frags.
33					
34					
35					
36					
37					
38					26 - 27 Ft: auger advance to 27 feet (TD)
39					
40					

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Montpelier, Vermont 05602

# DRILLING LOG

## WELL # MW-104

Project: H.A. EDDY  
Location: CONV. STORE  
Job # 1-0839-2  
Logged By: JRB  
Date Drilled: 7/27/93  
Driller: TRI STATE DRILLING  
Drill Method: 4.25 IN. HSA

Casing Type: PVC  
Casing Diameter: 2.0 in.  
Casing Length: 4.0 ft.  
Screen Type: Factory slotted  
Screen Diameter: 2.0 in.  
Screen Length: 6.0 ft.  
Slot Size: 0.010

Total Pipe: 10.0 ft.  
Stick Up: 0.0 ft.  
Total Hole Depth: 10.0 ft.  
Well Guard Length: 0.0 ft.  
Initial Water Level: 7.4 ft.  
Surface Elevation: 676.92 Ft.  
T.O.C. Elevation: 676.95 ft.

Sheet 1 of 1

■ = Sampled Interval

Depth (feet)	Well Construction	Notes	Geology	PID Reading	Description
5					
4					
3					
2					
1					
0					
1		Cement			
2		Backfill			
3		Bentonite			
4					4'-6': Blow Counts [4-5-3-5]; 1.0' recov.; moist brown fine to medium silty gravelly sand, siltier at top; very moist to wet at 4.5-5'
5		Sand Pack		0.0	
6		Screen			
7					
8					
9					9'-11': [8-14-30-46]; 1.5' recov.; brown gravelly sandy till; saturated at 9.5 - 10' (sand lens); highly compacted at 10 - 11' (more gravelly)
10				0.0	
11					
12					
13					
14					
15					
16					
17					

The Johnson Company, Inc.  
Environmental Sciences and Engineering  
5 State Street  
Montpelier, Vermont 05602

# DRILLING LOG

## WELL # MW-105

Project: H.A. EDDY  
Location: CONV. STORE  
Job # 1-0839-2  
Logged By: JRB  
Date Drilled: 7/27/93  
Driller: TRI STATE DRILLING  
Drill Method: 4.25 IN. HSA

Casing Type: PVC  
Casing Diameter: 2.0 in.  
Casing Length: 8.0 ft.  
Screen Type: Factory slotted  
Screen Diameter: 2.0 in.  
Screen Length: 5.0 ft.  
Slot Size: 0.010

Total Pipe: 13.0 ft.  
Stick Up: 0.0 ft.  
Total Hole Depth: 13.0 ft.  
Well Guard Length: 0.0 ft.  
Initial Water Level: N/A  
Surface Elevation: 688.12 ft.  
T.O.C. Elevation: 687.42 ft.

■ = Sample Interval

Sheet 1 of 1

Depth (feet)	Well Construction	Notes	Geology	PID Reading	Description
5					
4					
3					
2					
1					
0					
1		Cement			
2		Backfill			
3		Bentonite			
4		Backfill			
5					
6		Bentonite			
7					
8					
9		Sand Pack			
10					
11		Screen			
12					
13					
14					
15					
16					
17					

NOTE: Samples not collected. This borehole installed 7' North of VP-101. See well log for VP-101.

The Johnson Company, Inc.  
Environmental Sciences and Engineering  
5 State Street  
Montpelier, Vermont 05602

**DRILLING LOG**  
**WELL # MW-106**

Project: H.A. EDDY STORE INVEST.  
Location: H.A. EDDY CONV.STORE  
Job # 1-0839-2  
Logged By: JRB  
Date Drilled: 7/27/93  
Driller: TRI STATE, W.BURKE VT  
Drill Method: 4.25 IN. HSA

Casing Type: PVC  
Casing Diameter: 2.0 in.  
Casing Length: 5.0 ft.  
Screen Type: Factory slotted  
Screen Diameter: 2.0 in.  
Screen Length: 10.0 ft.  
Slot Size: 0.010

Total Pipe: 15.0 ft.  
Stick Up: 0.0 ft.  
Total Hole Depth: 15.0 ft.  
Well Guard Length: 0.0 ft.  
Initial Water Level: 8.5 ft.  
Surface Elevation: 688.67 ft.  
T.O.C. Elevation: 688.32 ft.

■ = Sampled Interval

Sheet 1 of 1

Depth (feet)	Well Construction	Notes	Geology	PID Reading	Description
5					1'-3': Blow Counts [12-10-6-4]; 1.6' recov.; gray gravel/fill to 2.5'; dark brown silty loamy sand below; PID reading from silty loamy sand
4					
3					
2					
1					3'-5': [3-15-3-8]; 1.5' recov.; silty loamy sand to ~4'; light brown gravelly silty fine sand w/ quartzite pebbles @ 4' (paleo-surface?) assoc. w/ dark banding
0					
1	Cement				
2	Backfill			.2	
3	Bentonite				5'-7': [5-6-6-5]; 1.8' recov.; strongly mottled fine-medium gravelly silty sand (sandy till) w/ quartzite frags.
4				0.1 - 0.2	
5					
6				0.0	7'-9': [33-7-7-9]; 1.0' recov.; mottled silty fine sand over saturated med sand lens @ 8.5'; light olive brown gravelly sandy till-wet below 8.5'
7					
8				0.0	
9					9'-11': [14-14-15-14]; 0.8' recov.; light olive brown fine sandy gravelly till (wet); quartzite frags. thru-
10	Sand Pack Screen			0.0	out
11					11'-13': NOTE: This interval was collected from boring offset by 3' to north of original boring due to crooked hole. [6-8-12-8]; 1.1' recov.; saturated olive brown fine to medium gravelly sand
12				0.0	
13					
14				0.0	13'-15': [6-7-13-13]; 1.5' recov.; same as above but a finer sand matrix @ 14.8'; also, more pervasive angular quartzite frags
15					
16					
17					

**Appendix B**  
**Laboratory Reports**

LABORATORY REPORT

CLIENT NAME: The Johnson Company  
 SITE LOCATION: HA Eddy CS - Rutland, VT  
 LABORATORY NO: 3-1261  
 PROJECT NO: 78611

DATE OF SAMPLE: 7/28/93  
 DATE OF RECEIPT: 7/29/93  
 DATE OF ANALYSIS: 8/5-11/93  
 DATE OF REPORT: 8/18/93

<u>PARAMETER</u>	<u>CS-Field</u>	<u>CS 101</u>	<u>CS 102</u>	<u>CS 103</u>
Chloromethane	BPQL	BPQL	BPQL	BPQL
Bromoform	BPQL	BPQL	BPQL	BPQL
Bromomethane	BPQL	BPQL	BPQL	BPQL
Dibromochloromethane	BPQL	BPQL	BPQL	BPQL
Vinyl Chloride	BPQL	BPQL	BPQL	BPQL
Chloroethylvinyl Ether	BPQL	BPQL	BPQL	BPQL
Chloroethane	BPQL	BPQL	BPQL	BPQL
Ethylene Chloride	BPQL	BPQL	BPQL	BPQL
Dichloroethylene	BPQL	BPQL	BPQL	BPQL
Trichlorofluoromethane	BPQL	BPQL	BPQL	BPQL
1,1-Dichloroethene	BPQL	BPQL	4	BPQL
cis-1,2-Dichloroethane	BPQL	BPQL	BPQL	BPQL
trans-1,2-Dichloroethane	BPQL	BPQL	BPQL	BPQL
1,1,1-Trichloroethane	BPQL	BPQL	BPQL	BPQL
Carbon Tetrachloride	BPQL	BPQL	BPQL	BPQL
Bromodichloromethane	BPQL	BPQL	BPQL	BPQL
1,2-Dichloropropane	BPQL	BPQL	BPQL	BPQL
1,3-Dichloropropene	BPQL	BPQL	BPQL	BPQL
cis-1,3-Dichloropropene	BPQL	BPQL	BPQL	BPQL
1,1,2,2-Tetrachloroethane	BPQL	BPQL	BPQL	BPQL
1,1,2-Trichloroethane	BPQL	BPQL	BPQL	BPQL
Tetrachloroethylene	BPQL	BPQL	BPQL	BPQL
MTBE (Methyl Tert Butyl Ether)	BPQL	3100	2700 *	310
Benzene	BPQL	9200	27	530
Toluene	BPQL	9600	2	35
Ethylbenzene	BPQL	1400	BPQL	44
Chlorobenzene	BPQL	BPQL	BPQL	BPQL
1,4-Dichlorobenzene	BPQL	BPQL	BPQL	BPQL
1,3-Dichlorobenzene	BPQL	BPQL	BPQL	BPQL
1,2-Dichlorobenzene	BPQL	BPQL	BPQL	BPQL
Xylenes	BPQL	7100	BPQL	110
Surrogate % Recovery (8010/8020)	101/88%	100/93%	102/110%	104/97%

EPA Method 8010/8020; all results reported as ug/L or ppb.

BPQL = Below Practical Quantitation Limit: 5 ppb for Bromoform & 2-Chloroethylvinyl Ether,  
 1 ppb for All other parameters.

Note: Many miscellaneous peaks found in CS 102, also MTBE was above working range of curve on this sample.

LABORATORY REPORT

CLIENT NAME: The Johnson Company  
 SITE LOCATION: HA Eddy CS - Rutland, VT  
 LABORATORY NO: 3-1261  
 PROJECT NO: 78611

DATE OF SAMPLE: 7/28/93  
 DATE OF RECEIPT: 7/29/93  
 DATE OF ANALYSIS: 8/5-11/93  
 DATE OF REPORT: 8/18/93

<u>PARAMETER</u>	<u>CS-104</u>	<u>CS 106</u>	<u>TRIP BLANK</u>
Chloromethane	BPQL	BPQL	BPQL
Bromoform	BPQL	BPQL	BPQL
Bromomethane	BPQL	BPQL	BPQL
1,1-Dibromochloromethane	BPQL	BPQL	BPQL
Vinyl Chloride	BPQL	BPQL	BPQL
2-Chloroethylvinyl Ether	BPQL	BPQL	BPQL
1,1-Dichloroethane	BPQL	BPQL	BPQL
1,2-Dichloroethane	BPQL	BPQL	BPQL
1,1,1-Trichloroethane	BPQL	BPQL	BPQL
Methylene Chloride	BPQL	BPQL	BPQL
Trichloroethylene	BPQL	BPQL	BPQL
1,1,1-Trichlorofluoromethane	BPQL	BPQL	BPQL
1,1,1-Dichloroethene	BPQL	BPQL	BPQL
1,1,2-Dichloroethane	BPQL	BPQL	BPQL
1,2-Dichloroethane	BPQL	BPQL	BPQL
1,2-Dichloropropane	BPQL	BPQL	BPQL
1,3-Dichloropropane	BPQL	BPQL	BPQL
1,3-Dichloropropene	BPQL	BPQL	BPQL
1,1,2,2-Tetrachloroethane	BPQL	BPQL	BPQL
1,1,2-Trichloroethane	BPQL	BPQL	BPQL
Tetrachloroethylene	BPQL	BPQL	BPQL
MTBE (Methyl Tert Butyl Ether)	BPQL	240	BPQL
Benzene	BPQL	160	BPQL
Toluene	BPQL	3	BPQL
Ethylbenzene	BPQL	BPQL	BPQL
Chlorobenzene	BPQL	BPQL	BPQL
1,4-Dichlorobenzene	BPQL	BPQL	BPQL
1,3-Dichlorobenzene	BPQL	BPQL	BPQL
1,2-Dichlorobenzene	BPQL	BPQL	BPQL
Arenes	BPQL	BPQL	BPQL
Surrogate % Recovery (8010/8020)	104/98%	105/92%	106/95%

PA Method 8010/8020; all results reported as ug/L or ppb.

BPQL = Below Practical Quantitation Limit: 5 ppb for Bromoform & 2-Chloroethylvinyl Ether,  
 1 ppb for All other parameters.

**analytics**environmental  
laboratory inc.195 Commerce Way  
Portsmouth, New Hampshire 03801  
603-436-3111RECEIVED  
AUG 24 1993  
THE JOHNSON CO. INC.  
MONTPELIER, VERMONT

August 24, 1993

Mr. Jim Bowes  
The Johnson Company  
5 State Street  
Montpelier, VT 05602

Re: H. A. Eddy (CS)

1-08939-2 (42)

Enclosed are the results of the analyses on your sample(s). Please see individual reports for specific methodologies and references.

If you have any further questions on the analytical methods or these results, do not hesitate to call.

<u>Lab Number</u>	<u>Sample Date</u>	<u>Station Location</u>	<u>Analysis</u>	<u>Remarks</u>
31581-01	8/18/93	MW 105	EPA 8010/8020	

Analytics Environmental Laboratory is certified by the states of New Hampshire, Maine and Massachusetts. A list of actual certified tests is available upon request.

Authorized signature

Kenneth W. Teague, President





environmental  
laboratory inc.

195 Commerce Way  
Portsmouth, New Hampshire 03801  
603-436-5111

August 24, 1993

Mr. Jim Bowes  
The Johnson Company  
5 State Street  
Montpelier, VT 05602

CLIENT SAMPLE ID

Client Project: H. A. Eddy (CS)  
Project Number: 1-08939-2 (42)  
Station ID: MW 105

SAMPLE DATA

Lab #: 31581-01  
Matrix: Water  
Percent Solid: N/A  
Dilution Factor: 1.0  
Collection Date: 8/18/93  
Lab Receipt Date: 8/19/93  
Analysis Date: 8/20/93

ANALYTICAL RESULTS VOLATILE ORGANICS

COMPOUND	Detection Limit: µg/L	Result: µg/L	COMPOUND	Detection Limit: µg/L	Result: µg/L
Vinyl chloride	5	ND	Chlorobenzene	5	ND
1,1-Dichloroethene	5	ND	Bromoform	5	ND
1,2-Dichloroethene (cis or trans)	5	ND	Dichlorodifluoromethane	5	ND
Trichloroethene	5	ND	Trichlorofluoromethane	5	ND
Tetrachloroethene	5	ND	Benzene	5	ND
Chloromethane	5	ND	Toluene	5	ND
Methylene chloride	5	ND	Ethylbenzene	5	ND
Chloroform	5	ND	o-Xylene	5	ND
Carbon tetrachloride	5	ND	m&p-Xylene	5	ND
Bromodichloromethane	5	ND	Methyl t-butyl ether	5	ND
Dibromochloromethane	5	ND	m-Dichlorobenzene	5	ND
Bromomethane	5	ND	o-Dichlorobenzene	5	ND
Chloroethane	5	ND	p-Dichlorobenzene	5	ND
1,1-Dichloroethane	5	ND	1,2-Dichloropropane	5	ND
1,2-Dichloroethane	5	ND	cis-1,3-Dichloropropene	5	ND
1,1,1-Trichloroethane	5	ND	trans-1,3-Dichloropropene	5	ND
1,1,2-Trichloroethane	5	ND	2-Chloroethylvinyl ether	15	ND
1,1,2,2-Tetrachloroethane	5	ND			
<u>Surrogate Standard Recovery</u>					
d4-1,2-Dichloroethane	93 %	d8-Toluene	110 %	Bromofluorobenzene	106 %
ND=None Detected    <=Less than    >=Greater than    PR=Present but not calibrated for					

**METHODOLOGY:** Water sample analysis was conducted according to "40 CFR Part 136, Mod. EPA Method 624" and other matrices were analyzed according to "Test Methods for Evaluating Solid Waste, Mod. SW-846 Method 8240."

**COMMENTS:**

Authorized signature

Kenneth W. Teague, President

## CHAIN OF CUSTODY RECORD

No 931

SENT BY:

8-24-93 : 1:18PM :

603 436 0154-

802 229 5876: # 3

Client/Project Name <b>H.A. Eddy (CS)</b>			Project Location <b>Rutland, VT</b>			ANALYSES			* Please send white copy back with results		
Project No. <b>J-0839-2 (42)</b>			Field Logbook No. —								
Sampler: (Signature) <b>Wm P. Dwyer</b>			Chain of Custody Tape No. <b>JCO-789</b>								
Sample No./ Identification	Date	Time	Lab Sample Number	Type of Sample	8010/8020			REMARKS			
MW 105	8-18-93	8:05		groundwater	3		31581-01		HCl preserved No Trip Blank Reading good condition * Any questions call Jim Bowes (802-229-4600)		
Relinquished by: (Signature) <b>Wm P. Dwyer</b>					Date 8-18-93	Time 13:30	Received by: (Signature) <b>FedEx Lori Vail</b>		Date 8/19/93	Time 10:00	
Relinquished by: (Signature) Per Request of J. Bowes, Note: Invoice to: H.A. EDDY, CO.					Date	Time	Received by: (Signature)		Date	Time	
Relinquished by: (Signature) 128 Merchants Row. Rutland, VT 05701					Date	Time	Received for Laboratory: (Signature)		Date	Time	
Sample Disposal Method: ATTN: David Mosher <b>Be</b>					Disposed of by: (Signature)				Date	Time	
SAMPLE COLLECTOR 5 State Street Montpelier, VT 05602 (802) 229-4600 Fax: (802) 229-5876 <b>THE JOHNSON COMPANY, INC.</b> <b>Environmental Sciences and Engineering</b>					ANALYTICAL LABORATORY (Fed Exp. - Std) Rutland Analytics 195 Commerce Way Portsmouth, NH 03801						

# LABORATORY REPORT

CLIENT NAME: The Johnson Company	LABORATORY NUMBER: 3-0890
SITE LOCATION: Dead River Co.	PROJECT NUMBER: 78611
Eddy Bulk Plant, Rutland	DATE OF SAMPLE: 6/3/93
	DATE OF ANALYSIS: 6/10-14/93
ATTENTION: James Bowes	DATE OF REPORT: 6/17/93

PARAMETER	MW-101	MW-102	MW-103	TRIP BLANK
Chloromethane	< 100	BPQL	BPQL	BPQL
Bromoform	< 500	BPQL	BPQL	BPQL
Bromomethane	< 100	BPQL	BPQL	BPQL
Dibromochloromethane	< 100	BPQL	BPQL	BPQL
Vinyl Chloride	< 100	BPQL	BPQL	BPQL
Chloroethane	< 100	BPQL	BPQL	BPQL
Methylene Chloride	< 100	BPQL	BPQL	BPQL
Trichloroethylene	< 100	BPQL	BPQL	BPQL
Trichlorofluoromethane	< 100	BPQL	BPQL	BPQL
1,1-Dichloroethene	< 100	BPQL	BPQL	BPQL
1,1-Dichloroethane	< 100	BPQL	BPQL	BPQL
c or t-1,2-Dichloroethylene	< 100	BPQL	BPQL	BPQL
Chloroform	< 100	BPQL	BPQL	BPQL
1,2-Dichloroethane	< 100	1	BPQL	BPQL
1,1,1-Trichloroethane	< 100	BPQL	BPQL	BPQL
Carbon Tetrachloride	< 100	BPQL	BPQL	BPQL
Bromodichloromethane	< 100	BPQL	BPQL	BPQL
1,2-Dichloropropane	< 100	BPQL	BPQL	BPQL
1,3-Dichloropropane	< 100	BPQL	BPQL	BPQL
1,3-Dichloropropene	< 100	BPQL	BPQL	BPQL
1,1,2,2-Tetrachloroethane	< 100	BPQL	BPQL	BPQL
1,1,2-Trichloroethane	< 100	BPQL	BPQL	BPQL
Tetrachloroethylene	< 100	2	BPQL	BPQL
MTBE	2430	1400	395	BPQL
Benzene	2850	5	273	BPQL
Toluene	2900	3	198	BPQL
Ethylbenzene	420	2	94	BPQL
Chlorobenzene	< 100	BPQL	BPQL	BPQL
1,4-Dichlorobenzene	< 100	BPQL	BPQL	BPQL
1,3-Dichlorobenzene	< 100	BPQL	BPQL	BPQL
1,2-Dichlorobenzene	< 100	BPQL	BPQL	BPQL
Xylenes	2280	BPQL	332	BPQL
Surrogate % Recovery 8010/8020	108/102	104/104	109/106	90/88

EPA Method 8010/8020; All results reported as ug/l or ppb.

BPQL = Below Practical Quantitation Limit: 5 ppb for Bromoform; 1 ppb for All other parameters.

## **Appendix C**

### **Line Test Reports - Northland Petroleum**

# TEL-A-LEAK™

## Hydrostatic Line Test FIELD SHEET

RECEIVED  
AUG 20 1993

THE JOHNSON CO., INC.  
STUTTELLER, VERMONT

10838-1  
JRB  
GBJ

Date 8/11/93

Location H.A. Eddy

Address Woodstock Ave

Rutland Vt.

Phone \_\_\_\_\_

Contact \_\_\_\_\_

Type of System

☒ Turbine ☐ Suction

Vapor Recovery

☐ Stage 1 ☐ Stage 2 ☒ None

Type of Pipeline Tested

☐ Vent ☒ Product ☐ Other

Tank Number #5

Product Kerosene

Pressure Applied 50 P.S.I. Lbs

Approximate Pipe Length 40' Ft

Remarks

Weather hot hazy & humid

LEVEL START	LEVEL END	* # GAIN = - # LOSS = +	GAL PER LINE	RESULT PER 5 MINUTES
22	- 22	= +0	x .0033	+ .0000
22	- 22	= +0	x .0033	+ .0000
22	- 22	= +0	x .0033	+ .0000
22	- 22	= +0	x .0033	+ .0000
22	- 22	= +0	x .0033	+ .0000
22	- 22.5	= -.5	x .0033	- .00165
30 Minute TOTAL				- .00165

\* A gain in numbers means a loss in product. Use the opposite sign.

Operator Name Test performed by Robert Barrett of Northland Petroleum Rate of Gain/Loss -.0033 Gal/H

R Barrett

Certify: ☒ Yes ☐ No

# TEL-A-LEAK™

Hydrostatic Line Test

FIELD SHEET

Date 8/11/93

Location H.C. Eddy

Address Woodstock Ave

Rutland, Vt.

Phone \_\_\_\_\_

Contact \_\_\_\_\_

Type of System

☒ Turbine ☐ Suction

Vapor Recovery

☐ Stage 1 ☐ Stage 2 ☒ None

Type of Pipeline Tested

☐ Vent ☒ Product ☐ Other

Tank Number #4

Product Super Unl. Gasoline

Pressure Applied 50 P.S.I. Lbs

Approximate Pipe Length 135' Ft

Remarks

Weather hot hazy humid

LEVEL START	LEVEL END	* # GAIN = - # LOSS = +	GAL PER LINE	RESULT PER 5 MINUTES
30	-	30 = +0	x .0033	+ .0000
30	-	29 = +1	x .0033	+ .0033
29	-	29 = +0	x .0033	+ .0000
29	-	28.5 = +.5	x .0033	+ .00165
28.5	-	28 = +.5	x .0033	+ .00165
28	-	28 = +0	x .0033	+ .0000
30 Minute TOTAL				+ .0066

\* A gain in numbers means a loss in product. Use the opposite sign.

Operator

Name Test performed by Robert Bennett of Northland Petroleum Rate of Gain/Loss + .0132 Gal/t

R. Bennett

Certify: ☒ Yes ☐ No

AUG-20-1993 FRI 14:11 0

# TEL-A-LEAK™

Hydrostatic Line Test

## FIELD SHEET

Date 8/11/93

Location H.O. Eddy

Address Woodstock Ave

Rutland Vt.

Phone \_\_\_\_\_

Contact \_\_\_\_\_

Type of System

☒ Turbine ☐ Suction

Vapor Recovery

☐ Stage 1 ☐ Stage 2 ☒ None

Type of Pipeline Tested

☐ Vent ☒ Product ☐ Other

Tank Number # 3

Product Unl. Plus Gasoline

Pressure Applied 50 P.S.I. Lbs

Approximate Pipe Length 110' Ft

Remarks

Weather hot hazy & humid

LEVEL START	LEVEL END	* # GAIN = - # LOSS = +	GAL PER LINE	RESULT PER 5 MINUTES
30	- 30	= +0	x .0033	+ .0000
30	- 29.5	= +.5	x .0033	+ .00165
29.5	- 29	= +.5	x .0033	+ .00165
29	- 29	= +0	x .0033	+ .0000
29	- 28.5	= +.5	x .0033	+ .00165
28.5	- 28.5	= +0	x .0033	+ .0000
30 Minute TOTAL				+ .00495

\* A gain in numbers means a loss in product. Use the opposite sign.

Operator

Name Test performed by Robert Barrett of Northland Petroleum Date of Gain/Loss + .0099 Gal/H

R Barrett

Certify: ☒ Yes ☐ No

# TEL-A-LEAK™

Hydrostatic Line Test

FIELD SHEET

Date 8/11/93

Location H.A. Eddy

Address Woodstock Ave

Rutland, Vt.

Phone \_\_\_\_\_

Contact \_\_\_\_\_

Type of System

☒ Turbine ☐ Suction

Vapor Recovery

☐ Stage 1 ☐ Stage 2 ☒ None

Type of Pipeline Tested

☐ Vent ☒ Product ☐ Other

Tank Number # 2

Product Diesel Fuel

Pressure Applied 50 P.S.I. Lbs

Approximate Pipe Length 120' Ft

Remarks

Weather hot, hazy & humid

LEVEL START	LEVEL END	* # GAIN = - # LOSS = +	GAL PER LINE	RESULT PER 5 MINUTES
29	-	29	= + 0 x .0033	+ .0000
29	-	29	= + 0 x .0033	+ .0000
29	-	29	= + 0 x .0033	+ .0000
29	-	29	= + 0 x .0033	+ .0000
29	-	29	= + 0 x .0033	+ .0000
29	-	29.5	= -.5 x .0033	- .00165
30 Minute TOTAL				- .00165

\* A gain in numbers means a loss in product. Use the opposite sign.

Operator

Name Test performed by Robert Barrett of Northland Petroleum Rate of Gain/Loss -.0033 Gal/Hr

Certify: ☒ Yes ☐ No

*Robert Barrett*



# TEL-A-LEAK™

Hydrostatic Line Test

## FIELD SHEET

Date 8/11/93

Location H.A. Eddy

Address Woodstock Ave

Rutland, Vt.

Phone \_\_\_\_\_

Contact \_\_\_\_\_

Type of System

☒ Turbine ☐ Suction

Vapor Recovery

☐ Stage 1 ☐ Stage 2 ☒ None

Type of Pipeline Tested

☐ Vent ☒ Product ☐ Other

Tank Number #1

Product Reg Unl Gasoline

Pressure Applied 50 P.S.I. Lbs

Approximate Pipe Length 130' Ft

Remarks

Weather hot, hazy & humid

LEVEL START	LEVEL END	# GAIN = - # LOSS = +	GAL PER LINE	RESULT PER 5 MINUTES
26	- 26	+0	x .0033	+ .0000
26	- 26	+0	x .0033	+ .0000
26	- 26	+0	x .0033	+ .0000
26	- 26	+0	x .0033	+ .0000
26	- 26	+0	x .0033	+ .0000
26	- 25.5	+ .5	x .0033	+ .00165
30 Minute TOTAL				+ .00165

\* A gain in numbers means a loss in product. Use the opposite sign.

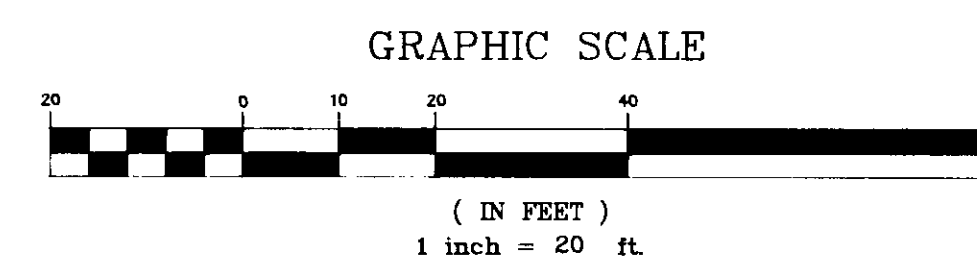
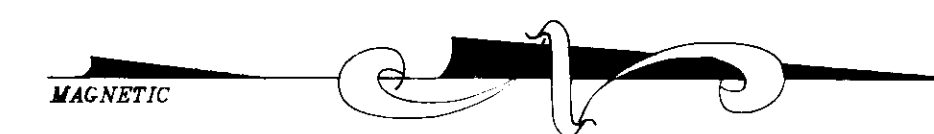
Operator Name Test performed by Robert Barnett of Northland Petroleum Rate of Gain/Loss + .0033 Gall/H

Certify: ☒ Yes ☐ No

*[Signature]*

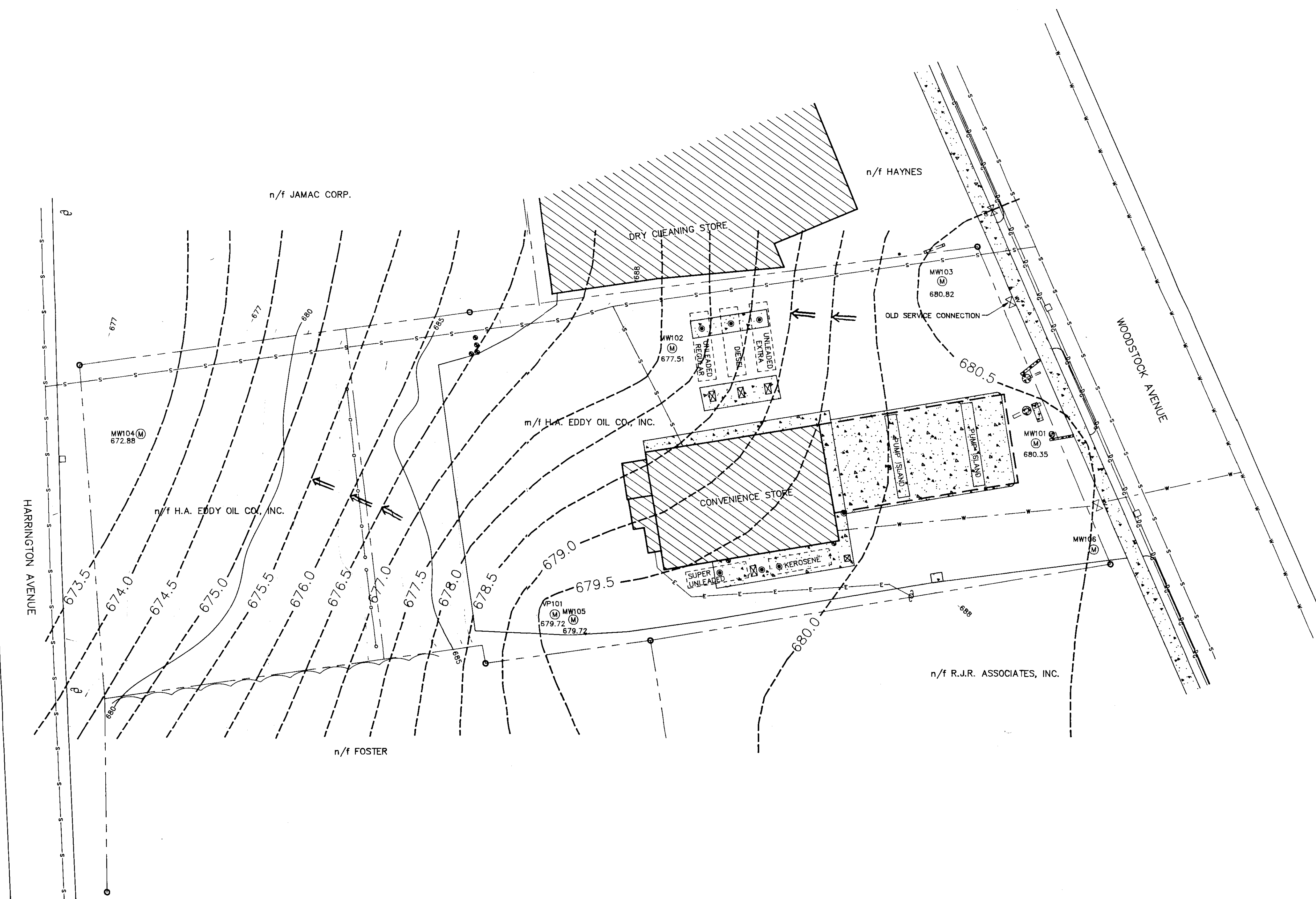
05

FRI 14:15  
AUG-20-93



LEGEND

- NORMALIZED 0.5' GROUNDWATER CONTOUR - 7/30/93
- GROUNDWATER FLOW DIRECTION
- 1' GROUND SURFACE CONTOUR
- PROPERTY LINE
- - - - - UNDERGROUND STORM DRAIN LINE
- - - - - UNDERGROUND GAS UTILITY LINE
- - - - - UNDERGROUND WATER MAIN
- - - - - UNDERGROUND WATER MAIN (APPROX. LOCATION)
- - - - - UNDERGROUND ELECTRIC LINE
- - - - - SEWER LINE
- - - - - CHAINLINK FENCE
- - - - - CEDAR HEDGE
- ⊗ GAS VALVE
- ⊗ WATER VALVE
- ⊗ UTILITY POLE
- ⊗ IRON PIN
- ⊗ CATCH BASIN
- ⊗ FILL PIPE
- ⊗ VALVE PIT
- ⊗ VENT PIPE
- ⊗ MONITORING WELL LOCATION
- ⊗ CONCRETE
- ⊗ SIGNAGE
- ⊗ UNDERGROUND STORAGE TANK (APPROXIMATE LOCATION)



SOURCES: SURVEY BY COURCELLE SURVEYING CO., RUTLAND, VERMONT;  
"RESURVEY AND SUBDIVISION OF LANDS OF H.A. EDDY OIL CO., INC." BY  
COURCELLE SURVEYING CO., RUTLAND, VERMONT;  
GROUNDWATER CONTOURS BY THE JOHNSON CO., INC., MONTEPELIER, VERMONT

Rev. No.	Date	Description	Made by	Chk'd by	App'd by
GAS STATION SITE PLAN H.A.EDDY OIL COMPANY RUTLAND, VERMONT					JUG 27 1993
THE JOHNSON COMPANY, INC. Environmental Sciences and Engineering 5 STATE STREET MONTEPELIER, VERMONT 05602					Sheet 1 of 1 Scale: 1"=20' Drawn by: TJK Chk'd by: JRE Date: 8/25/93 Job 1-0839-2

GASSTA.dwg